GCC TECHNOLOGIES™

FX SERIES

User's Manual

GCC TECHNOLOGIES

GCC Technologies FX
User's Manual

Federal Communications Commission
Radio Frequency Interference and Safety Information

To prevent electrical shock, do not remove any screws which enclose the FX. There are no parts inside the covers that are serviceable by the user. Refer servicing to qualified service personnel.

Your FX has been tested and complies with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules. Your FX must be used with the provided shielded cables. These rules are designed to provide reasonable protection against such interference in a residential installation, depending on how your FX is located relative to radio and television equipment.

You can determine whether your FX is causing interference by switching it off. If interference stops, it was probably caused by the FX. If interference does occur, the following measures are suggested to correct the problem:

- Move the television or radio antenna.
- Move the FX away from the radio or television.
- Plug the FX into a different electrical outlet.
- Talk to an experienced radio/television technician for other suggestions.

You may also find helpful the following booklet, prepared by the FCC: *How to Identify and Resolve Radio-TV Interference Problems.* This document is available from the U.S. Government Printing Office, Washington, DC 20402.

Canadian Regulations: This equipment is a Class B digital apparatus which complies with the Radio Interference Regulations, CRC c. 1374.

GCC-030-10806-00, rev. 4, 6/89

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Introduction

The GCC Technologies™ FX series is a line of external hard disks to be used with an Apple® Macintosh® computer for data storage. Fast access to your documents and applications is achieved through the Small Computer System Interface (SCSI), a standardized cable system and communications protocol, which combines flexibility, expandability, and speed to as many as seven peripheral devices for the Macintosh. The FX hard disk gives you the power to use your Macintosh more efficiently and provides increased storage capacity over floppy disks.

The FX has many unique features:

Extremely reliable data storage
FX hard disks' rugged power supplies, built-in fans, and sophisticated shock mounting assure their reliability.

Sophisticated software utilities
The FX comes with **UltraWare** software, which adds maximum flexibility to your drive. UltraWare consists of a DiskManager, that allows you to perform a comprehensive disk test, change the SCSI ID, initialize the disk drive, and set the interleave value. In addition, the FX comes complete with an array of sophisticated utility programs.

Partitioning
UltraWare also includes partitioning. This feature allows you to organize your data by dividing the FX into partitions, and can support any combination of Macintosh, ProDOS, and A/UX operating systems on a single hard disk. A desk accessory is provided that allows you to access partitioning from within any application.

Portable
The FX hard disk's read/write heads automatically park when the unit is shut down, making the unit ready to travel. This feature, combined with the added security of shock mounting and a convenient carrying handle, make the FX a truly portable hard disk.

About the Documentation

This manual provides all of the information you need to know to use your FX hard disk.

You will also find a set of Release Notes on both the FX **Installation** disk, and on the FX hard disk, which provides additional, up-to-date information. Make sure that you review these notes before using your FX.

This User's Manual is divided into the following sections:

- Chapter 1 provides details on unpacking and caring for your FX.
- Chapter 2 gives instructions on how to set up your FX.
- Chapter 3 describes software installation procedures if you ever need to reinstall the FX software.
- Chapter 4 explains how to use your FX.
- Chapter 5 describes the partitioning software provided with your FX.
- Chapter 6 covers troubleshooting for your FX.

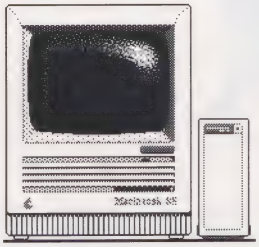
The *QuickSpool* manual describes in detail the QuickSpool application that is included with your hard disk.

Chapter 1: Getting Started

Chapter 1: Getting Started

FX hard disk

Your new GCC Technologies FX is an external hard disk for the Macintosh line of computers. The FX provides fast storage space for all of your Macintosh applications and documents. With the FX's built-in carrying handle, you can easily transport your hard disk and files from one Macintosh to another.

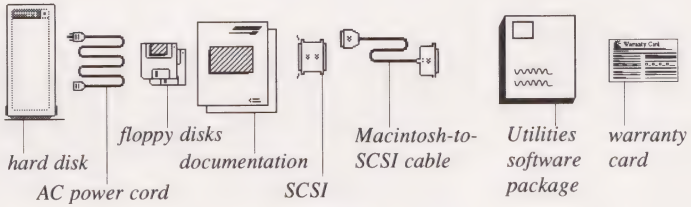


Unpacking your FX

Besides the FX hard disk, your FX package should contain the following:

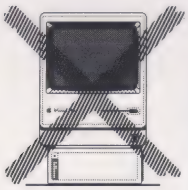
AC power cord
FX **Installation** floppy disk
FX **Applications** floppy disk
FX User's Manual
QuickSpool Manual
SCSI terminator
Macintosh-to-SCSI cable
Utilities software package
Warranty card

If anything is missing, please contact your dealer or GCC Technologies right away.



Caring for your FX

During operation, the FX must stand upright and to the right of the Macintosh in a well-ventilated area. Do not, under any circumstances, place the FX on its side or jar or move the FX while it is in use.



Also, never place the FX near any source of heat (e.g., direct sun, heaters, or heat-generating equipment), magnetic fields, or radio emissions, as these may damage your files. As with any computer hardware, make sure the FX is switched off when you connect or disconnect it.

The outside case can be cleaned with a damp, lint-free cloth. Do not use aerosol sprays, solvents, or abrasives that might damage the finish of the case.

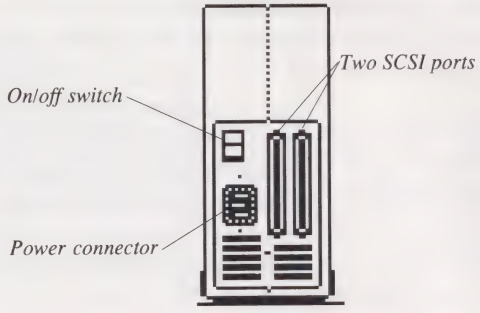
Chapter 2:
Setting up the FX

Chapter 2:
Setting up the FX

Introduction

The nameplate on the front panel of your FX indicates the storage capacity of your hard disk. There is also an activity LED that will blink when the drive is being accessed.

The back panel of your FX consists of several switches and connectors:



The on/off switch is located at the upper left of the back panel.

Beneath the on/off switch is the power connector. We recommend that you only use the power cord that came with your FX, since it is designed to handle the power requirements of your hard disk.

On the right side of the back panel there are two 50-pin SCSI ports. These ports enable you to connect your FX to the SCSI system, which is explained in detail beginning on the following page.

Setting up the FX

Introducing the Small Computer System Interface

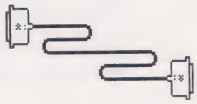
Your FX uses the Small Computer System Interface (SCSI, pronounced "scuzzy"), a standardized cable system and communications protocol that allows you to connect as many as seven SCSI peripheral devices to your Macintosh computer.

The SCSI system uses special cables and terminators to achieve fast communication between the Macintosh and peripheral devices. To function properly, the combined length of the entire cable system must not exceed 19 1/2 feet (6 meters) and must include the appropriate number of terminators. Terminators are small double-plug devices that maintain the clarity of the SCSI signal along the chain of devices. There must be at least one and no more than two terminators on a SCSI chain, so knowing when and where to use terminators is extremely important. The use of more than two terminators may permanently damage both the Macintosh and the FX. The guidelines and connection diagrams on the following pages should make it clear.

SCSI port

Macintosh-to-SCSI (25-to-50)

SCSI-to-SCSI (50-to-50)



SCSI terminator

Connection guidelines

- **There must be one terminator at the start and one at the end of the SCSI chain.** The only exception to this is when there is only one SCSI peripheral connected to your Macintosh. In this case, only one terminator is required.
- Some SCSI devices have internal terminators, like GCC Technologies' and Apple's internal hard disks which are installed inside the Macintosh. (Even some third-party *external* SCSI devices have internal terminators.)
- Having more than two terminators, even though some cannot be seen, may damage your computer and FX. Check the manuals of all of your SCSI devices to determine which have internal terminators.
- Always make SCSI connections firm, connecting the clips or tightening the screws which hold the parts together. Most apparent FX problems are actually connection problems along the SCSI cables and terminators.
- Some devices, like the FX, have two SCSI ports. The cable and terminator can be attached to either port without affecting the performance of the drive.
- When connecting or disconnecting the SCSI system, make sure all devices are switched off.
- Each device on the SCSI system must have a unique SCSI ID number. Read more about "SCSI ID settings," on page 27.

Setting up the FX

Connecting the SCSI system

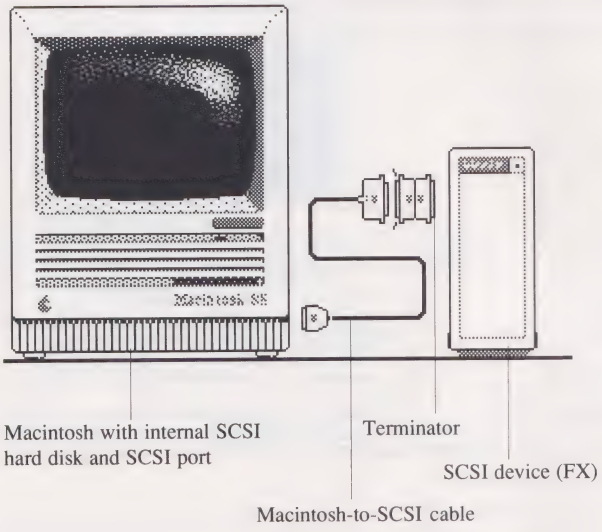
There are a variety of configurations for your system depending on what hardware you own.

The following pages contain diagrams for connecting the many different combinations. Find the appropriate configuration for your hardware, and follow the connection diagram and instructions.

- If you have an internal SCSI hard disk and a single external device, please turn to page 19.
- If you have an internal SCSI hard disk and multiple external devices, please turn to pages 20 and 21.
- If you do not have an internal SCSI hard disk and have a single external device, please turn to page 22.
- If you do not have an internal SCSI hard disk and have multiple external devices, please turn to pages 23 and 24.

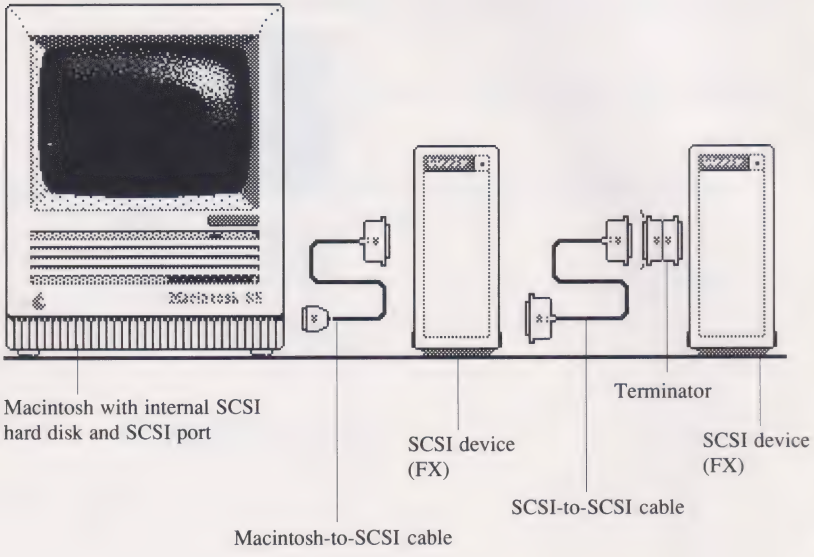
• **Internal SCSI hard disk internally terminated, and a single external device.** (Macintosh Plus owners: some internal hard disks are non-SCSI devices; e.g., HyperDrive® 10, 20, and 2000.)

Add one terminator between the Macintosh-to-SCSI cable and the external SCSI device.



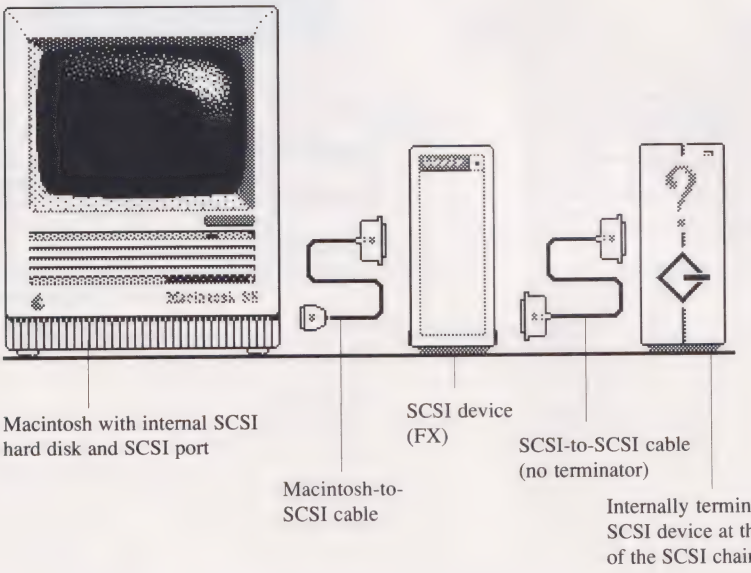
• **Internal SCSI hard disk internally terminated, and multiple external devices.** (Macintosh Plus owners: some internal hard disks are non-SCSI devices; e.g., HyperDrive 10, 20, and 2000.)

Add one terminator between the SCSI-to-SCSI cable and the last external SCSI device.



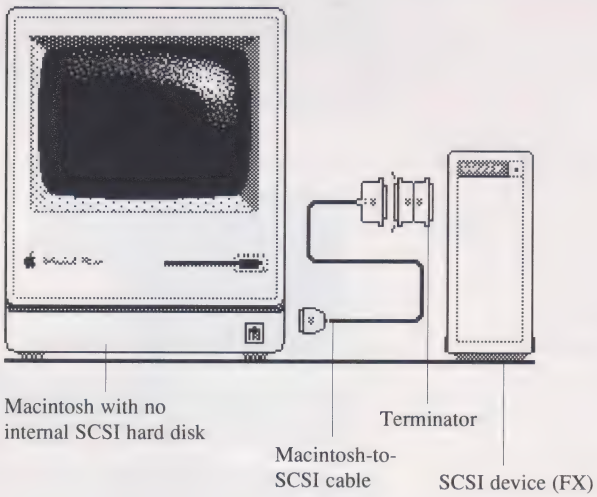
• **Internal SCSI hard disk internally terminated, and multiple external SCSI devices, one with internal termination.** (Macintosh Plus owners: some internal hard disks are non-SCSI devices; e.g., HyperDrive 10, 20, and 2000.)

If one of the external devices has its own built-in terminator, move that device to the end of the chain and do not add any terminators. If more than one of the external devices has a built-in terminator, the internal termination will have to be removed according to the manufacturer's directions.


Macintosh with internal SCSI hard disk and SCSI port
Macintosh-to-SCSI cable
SCSI device (FX)
SCSI-to-SCSI cable (no terminator)
Internally terminated SCSI device at the end of the SCSI chain

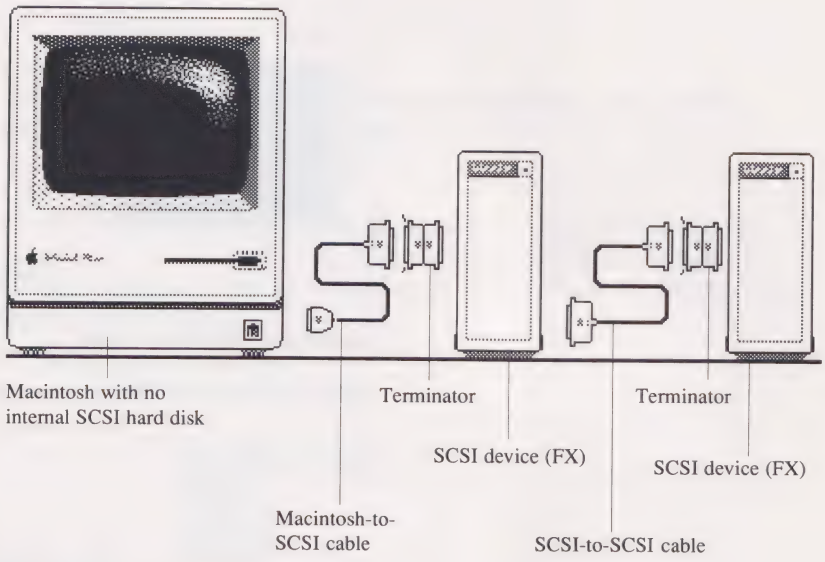
• **No internal SCSI hard disk and a single external SCSI device.**

Add one terminator between the Macintosh-to-SCSI cable and the external SCSI device.



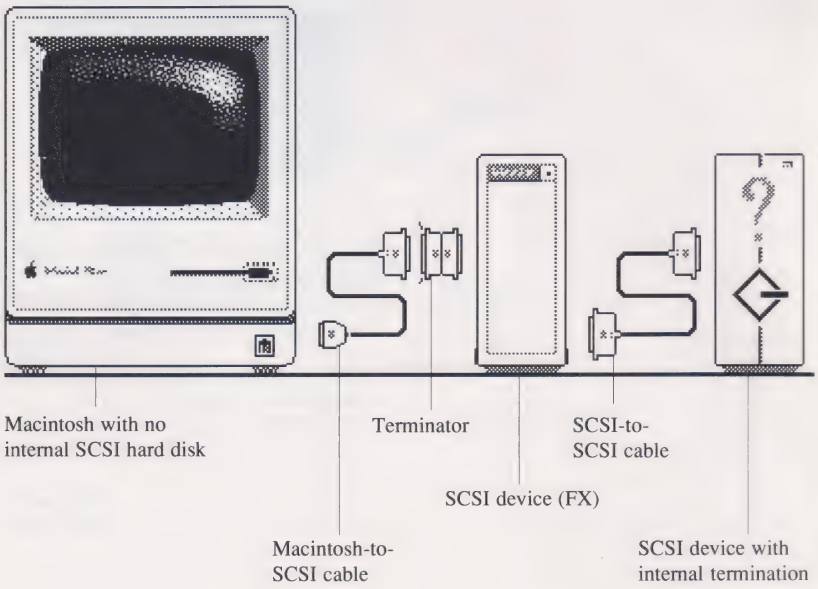
• **No internal SCSI hard disk and multiple external SCSI devices.**

Add one terminator between the Macintosh-to-SCSI cable and the first external SCSI device. Add a second terminator between the last SCSI-to-SCSI cable and the last external SCSI device.



• No internal SCSI hard disk and multiple external SCSI devices, one with internal termination.

If one of the devices in the chain has its own internal terminator, place that device at the end of the chain. You will need to place a second terminator between the Macintosh-to-SCSI cable and the first external SCSI device.



Setting up the FX

Connecting power to your FX

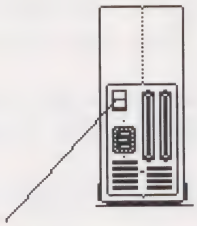
The FX must be plugged into a grounded AC outlet using the cord provided. Do NOT defeat the safety of the three-prong plug. If your output is not a grounding-type AC outlet, have a licensed electrician replace the socket.

Any electrical equipment may be hazardous if misused. Take standard precautions when plugging and unplugging the FX.

Switching the FX on and off

Switching on

Always switch on your FX before the Macintosh. After fifteen seconds, switch on your Macintosh. If the Macintosh is switched on before the FX is ready, the Macintosh may not start up from your FX, or the FX may not appear on your desktop.



The power switch is on the rear panel of the FX.

Switching off

You should always select **Shut Down** from the **Special** menu and then switch your Macintosh off before switching off your FX. This will ensure that your system software is properly updated, and the hard disk heads will be parked. See page 59 for more information on parking the hard disk heads.

Setting up the FX

Determining the startup volume

The startup volume is the volume that contains the System and Finder™ files necessary to start up your Macintosh. A **System Folder** must contain the System and Finder files, and all printer files (such as the ImageWriter® file).

The System Folder must contain the System and Finder files.

The FX will be the startup volume, unless you start up from a floppy disk. When you switch the power on, the Macintosh searches its storage devices for a **System Folder** in the following order: internal floppy-disk drive; external floppy-disk drive or Apple Hard Disk 20 serial; SCSI storage devices, in order of SCSI ID priority, from 6 down to 0.

The first device that contains a **System Folder** will become the startup volume. If you want a device other than the FX to be the startup volume:

- use **Startup Device** to indicate which volume is to be the startup volume. For more information, please see the following page;
- or, remove the **System Folder** from the FX;
- or, change the SCSI ID of the devices so that the SCSI ID of the FX is lower than that of the startup volume (see "SCSI ID settings," on the following page).

NOTE: The partitioning software provided with your FX will allow you to set a specific partition to be the startup partition. This partition must still contain a **System Folder**, and the FX that it is a part of must be set as the startup device. For more information, please see "Chapter 5: Partitions," beginning on page 65.

If the Macintosh you are using is configured with Apple's System version 4.1, Finder version 5.5; or later versions, you can change the determination of the startup volume. A file has been included with Apple's System software named **Startup Device**. When you access the **Control Panel** desk accessory, you can use the **Startup Device** to choose your own startup volume. As long as the device you choose has a valid **System Folder** in it (be it an internal hard disk, or an external hard disk), it will be the startup volume the next time you restart your system. This will be the new default until you decide to change it at a later time.

NOTE: When selecting which volume to start from, the **Startup Device** ignores the SCSI ID setting that you have chosen for your device. For further information regarding the **Startup Device** file, please see Apple's documentation.

SCSI ID settings

WARNING: To prevent damage to your hardware and software, read this section before switching on your system.

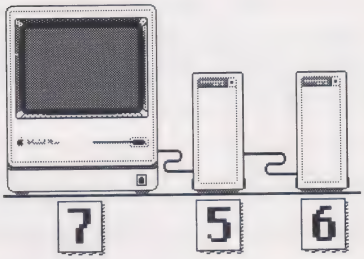
Each device on the SCSI cable system must be given a different SCSI ID setting between 0 and 7. The Macintosh is given the highest SCSI ID setting of 7, leaving 0 through 6 available for SCSI peripheral devices. The SCSI ID setting of any device can be changed, but the procedure varies between devices. Some devices use software, some use a switch on the device, and others require a dealer to change the SCSI ID setting. Check the user's manual that comes with the device.

If two devices on your SCSI cable system have the same SCSI ID, neither will work correctly, and your hardware and data may be damaged.

Choosing the SCSI ID of each device

Your FX comes with a preset SCSI ID of 6. This setting can be changed by using the DiskManager application.

To decide what ID you should give to each of your SCSI peripheral devices, think about how often you will use each one. If you intend to use your FX as the startup volume, its setting should remain at #6. If you add another FX to store documents or applications, you should change the setting of one to #5. Any other hard disks, tape backup units, or other SCSI peripherals should be given different SCSI ID settings.



The order in which the SCSI devices are physically connected is irrelevant to the ID settings.

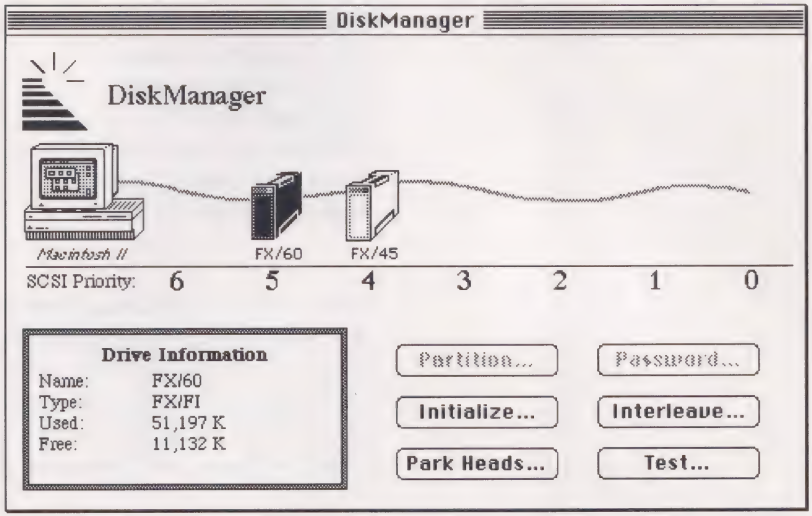
Changing SCSI ID settings

Each device must have its own unique SCSI ID setting. A conflict in ID numbers will cause both devices to work improperly, and your FX and its files may be damaged. The **DiskManager** allows you to check the ID setting of an FX. The ID setting can also be seen in the FX icon which appears on the desktop. Follow the steps below to change the SCSI ID setting of your FX.

To check another device's ID setting, refer to its user manual. If there is a conflict, you will need to change the ID setting before connecting the SCSI devices to your Macintosh.

To change the SCSI ID setting of an FX:

1. **Shut Down** *the Macintosh.*
2. *Switch on the FX.*
3. *Insert the FX* **Installation** *disk, and switch on the Macintosh.*
4. *Run the* **DiskManager** *by double-clicking on its icon.*
5. *The main DiskManager window will appear. Select the FX whose setting is to be changed by clicking on its icon.*



6. *Using the mouse, drag the FX icon to the left or right to change the SCSI ID setting. Release the mouse when the icon is above the number that you want as the FX's SCSI ID.*

7. *Choose* **Quit** *from the* **File** *menu.*

If you have additional FX hard disks needing their ID settings changed, repeat steps 1 - 7 above for each one.

Below are the factory SCSI ID settings for various products. It may help you when connecting a new device to your SCSI system.

GCC FX	6
GCC FI	6
GCC UltraDrive external	6
GCC UltraDrive internal	6
GCC HyperTape™	2
GCC Personal LaserPrinter™	3
Apple Hard Disk SC external	6
Apple Hard Disk SC internal	0

NOTE: If you use **Startup Device** in the **Control Panel** to set one of your SCSI peripheral devices as your startup volume, the SCSI ID becomes irrelevant in terms of priority. The device you set to be the startup device will remain the startup device regardless of its SCSI ID number. You still need to make sure that no two devices have the same number. For more information, please see "Determining the startup volume," on page 26.

Chapter 3:
Software Information

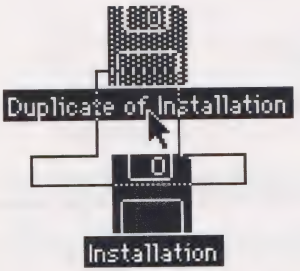
Chapter 3:
Software Information

Introduction

GCC Technologies provides the latest version of Apple's system software on the FX **Installation** disk. This version is tested for complete compatibility with the FX hardware and software and is the only recommended system software release. You should make a copy of the FX software immediately and store it safely so that a "master" copy is always available to you.

To copy your FX software disks:

1. *Switch on your computer and hard disk(s).*
2. *Insert a blank floppy disk and name it "Duplicate of..." the name of the floppy disk you will first copy.*
3. *Eject the blank floppy disk by choosing the* **Eject** *command from the* **File** *menu.*
4. *Insert the FX* **Installation** *disk and drag the icon of this floppy disk on top of the icon for the duplicate disk which is grayed out.*



5. *When the copying is complete, eject the duplicate floppy disk, label it, and store it. Eject the FX* **Installation** *disk.*
6. *Repeat this procedure for the FX* **Applications** *disk.*

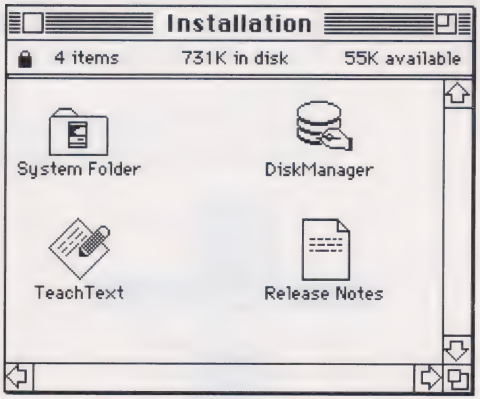
Software Information

Software installation

Your FX is shipped with the current software already installed. In case you ever need to reinstall the software, we have provided this software on the floppy disks that are shipped with your FX.

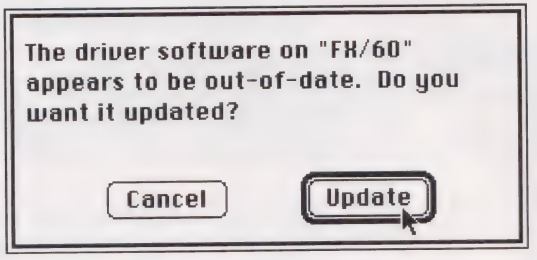
To reinstall the software onto your FX:

1. **Shut Down** *your Macintosh.*
2. *Insert the FX* **Installation** *disk into your Macintosh.*
3. *Switch on your FX first, and then switch on your Macintosh. The* **Installation** *disk window and the* **FX** *icon will appear on your desktop.*

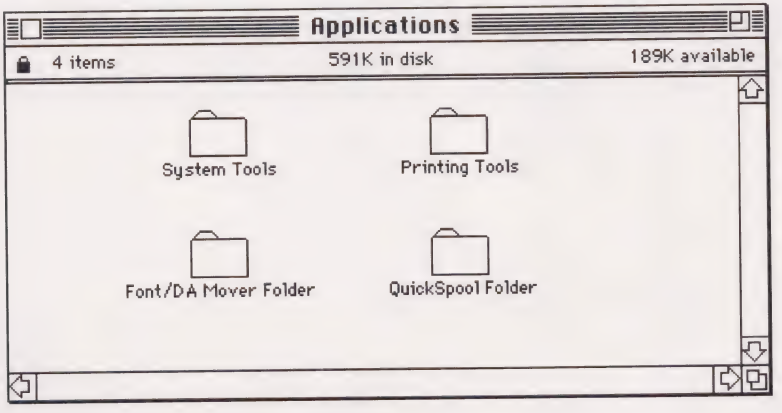


4. *Copy all of the files from the FX* **Installation** *disk onto the FX. To do this, choose the* **Select All** *command from the* **File** *menu to select all of the icons, and drag them over to the* **FX** *icon. A dialog will appear indicating how many files are being copied.*

5. *When copying is complete, double-click on the* **DiskManager**. *The* **DiskManager** *will check to make sure that the latest driver software is on the hard disk. If it is out-of-date, a dialog will appear informing you that your driver software needs to be updated. If so, click* **Update**. *Note that this will have no effect on your data.*



6. *Under the* **File** *menu, choose* **Quit.**
7. *Choose* **Restart** *from the* **Special** *menu to restart your Macintosh. The FX should be the startup volume (unless* **Startup Device** *is used). If it is not, see page 91 - 93 in the troubleshooting section.*
8. *Insert the FX* **Applications** *disk into your Macintosh. The* **Applications** *disk window will appear on your desktop.*

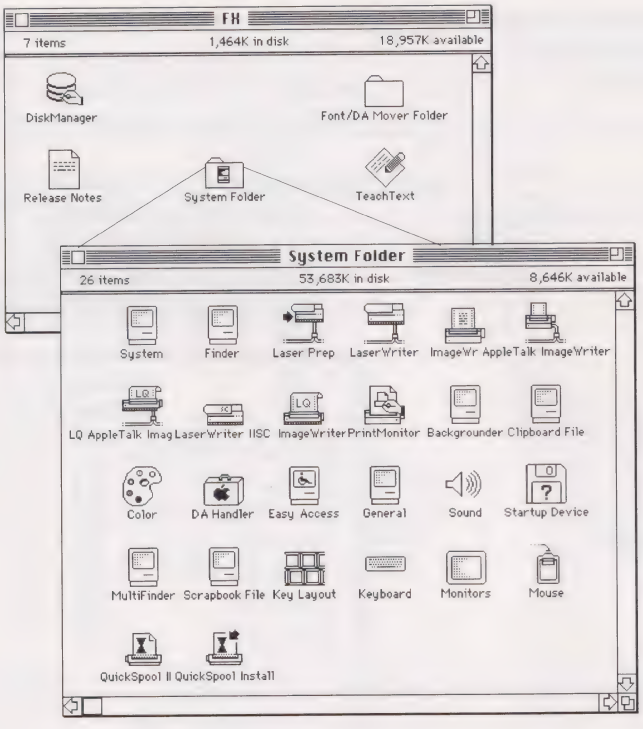


9. *Copy the* **Font/DA Mover Folder** *onto the FX. A dialog will appear indicating how many files are being copied.*
10. *Double-click on the* **Printing Tools** *folder which is located on the FX* **Applications** *disk.*
11. *Copy all of these files into the* **System Folder** *on the FX. To do this, select all of the icons by choosing* **Select All** *from the* **Edit** *menu, and drag the icons into the* **System Folder** *of your FX.*

NOTE: It is very important that the printer drivers be in the **System Folder**, but not in a separate folder themselves. They must be at the same level as the System and Finder files.

12. *Double-click on the* **System Tools** *folder.*
13. *Copy all of these files into the* **System Folder** *on the FX.*
14. *Double-click on the* **QuickSpool Folder**.
15. *Copy these files into the* **System Folder** *on the FX.*
16. *Eject the floppy disk using the* **Eject** *command from the* **File** *menu.*
17. *Follow the steps on the page 38 for instructions on how to install the GCC Partitions desk accessory.*

Software Information



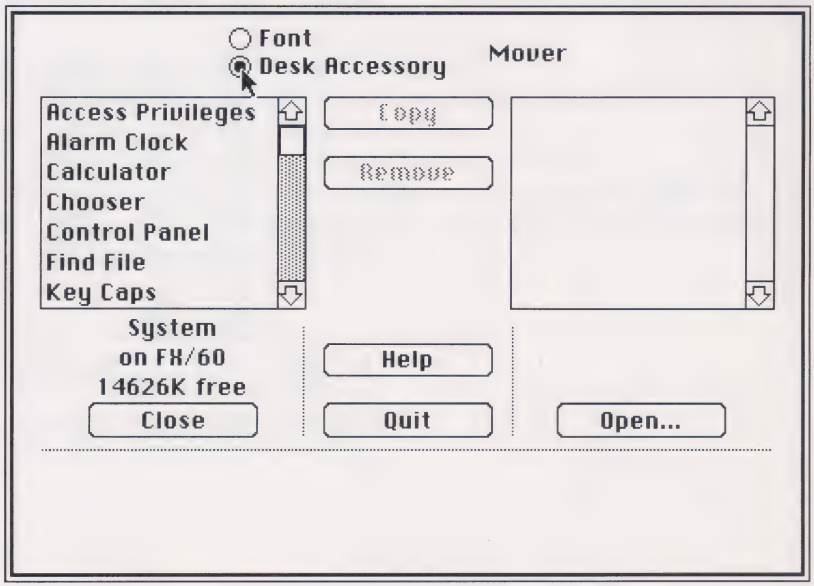
When the software is completely installed, your FX window should look something like this. Notice that the printer drivers are at the same level as the System and Finder files.

Installing the GCC Partitions desk accessory

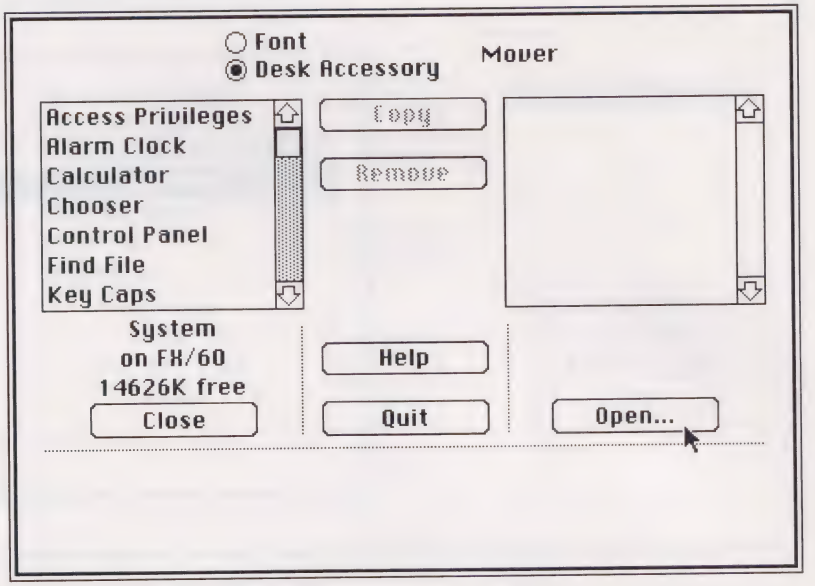
Your FX comes with a **GCC Partitions** desk accessory already installed in the System file. If you ever need to reinstall this desk accessory, you must use Apple's **Font/DA Mover**. Use either the **Font/DA Mover** provided with your FX, or a more recent version, if any, provided by Apple.

To install the GCC Partitions desk accessory into your System file:

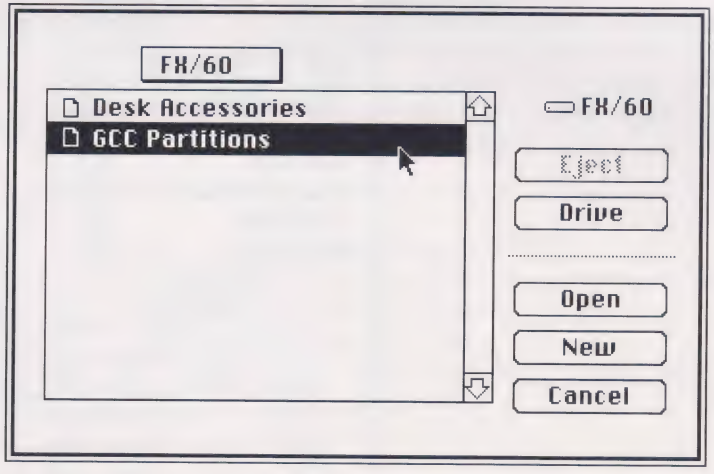
1. *Double-click on the* **Font/DA Mover** *located on your startup volume.*
2. *A window will appear, the left side displaying the fonts that are currently installed in the System file of your startup volume. Click on the button next to* **Desk Accessory** *at the top of the window.*



3. *The window will change to display all of the desk accessories that are currently in the System file of your startup volume. Click* **Open...** *located in the lower right of the window.*

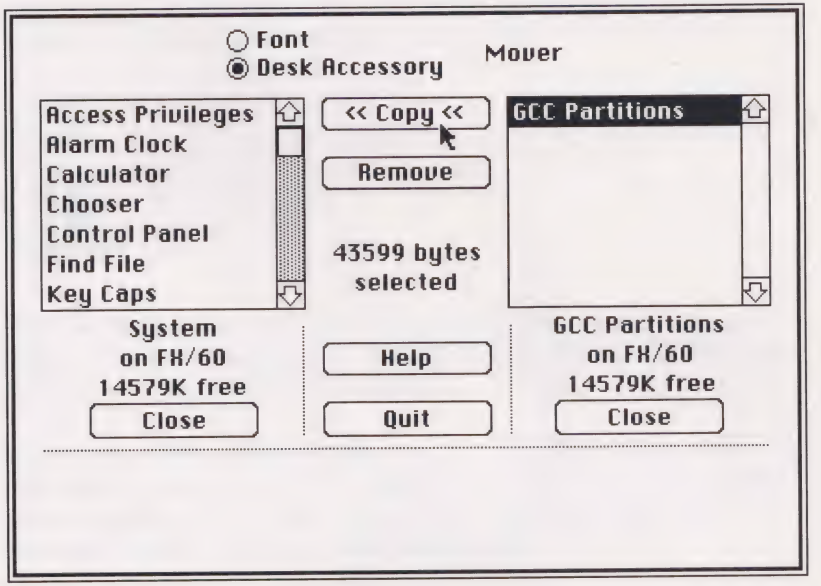


4. *Another window will appear, displaying a directory of the desk accessories on the current startup volume. Select* **GCC Partitions** *by clicking on it. If for some reason this is not in the directory, look in the folders listed, or click* **Drive** *until it does appear.*



5. *Click* **Open**. *The original* **Font/DA Mover** *window will reappear, this time displaying on the right side the GCC Partitions desk accessory.*
6. *Select* **GCC Partitions** *from the right side of the window. The number of bytes selected and the amount of space available on the volume will be displayed.*

7. *Click* **Copy** *to copy the GCC Partitions desk accessory into your System file.*



8. *Click* **Quit** *to return to the Finder.*

Chapter 4: Using the FX

Chapter 4: Using the FX

Naming your FX

You can name your FX to suit your needs. When the FX icon is on the desktop, click on it once and type in the new name. The name can be a maximum of 27 characters and cannot contain a colon (:). If you try using a colon, it will automatically be replaced by a dash.

You will also notice that the SCSI ID setting is shown in the middle of the FX icon.

Copying files to your FX

While working in the Macintosh Finder desktop, you can copy files and folders to the FX by dragging the file icons onto the FX icon or into an FX window—as with a Macintosh floppy disk.

Never copy another **System Folder** onto your hard disk unless you are replacing the original one. Some applications come with a **System Folder** on the installation disk. When copying these applications onto your FX, make sure that you do not copy the **System Folder**.

Organizing your FX

The Macintosh and FX use the Hierarchical File System (HFS) to store files in distinct storage areas called folders. You can use as many folders as you like. To create a folder, choose **New Folder** from the **File** menu in the Finder. You can put folders inside of folders to organize your files further. You can name your folders by clicking on them once and typing in the names.

The **DiskManager** application also allows you to divide your hard disk into SCSI partitions. These partitions will appear on your desktop, just like the FX. You can further organize your data by using folders within these partitions. Since the Finder slows down when it has to keep track of a large number of files, the use of partitions and folders reduces the number of items on the desktop and speeds up the Finder. See page 65 for more information on using partitions.

Using the FX

Using copy-protected applications

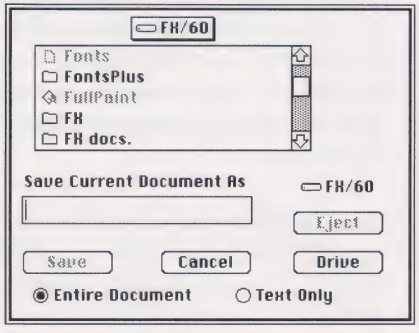
Many applications are copy-protected in one form or another. Some copy-protected applications can be copied onto the FX. Whenever you open the application, it may ask you to insert a master or original version of the application. After you insert the requested disk into the internal floppy disk drive of the Macintosh, you can use the version stored on your FX. This version will run at the increased speed of the hard disk.

Some applications use sophisticated copy protection that will not allow the application to be copied at all. Ask a dealer or the software publisher about the possibilities of copying the application onto your hard disk.

Opening and saving files

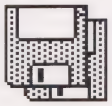
In some applications, you can open files from different devices without leaving the application. Choose the **Open** option from the **File** menu and click the **Drive** button until the name of the volume with the file you want appears. The list in the dialog box will display the files and folders on the disk that can be opened by the application.

To save files directly to any volume while working in an application, choose the **Save As** option from the **File** menu. In the **Save As** dialog box, click the **Drive** button to move from one volume to another. When the name of your FX appears, give the file a name and click the **Save** button.



Using the FX

Backing up your FX



GCC Technologies has designed both the hardware and software of the FX to meet high quality standards. However, if for any reason your data becomes damaged or inadvertently deleted, you will need a backup copy of your data. Use a backup program to back up your files regularly so you will always have spare copies of your data.

The DiskManager application

The **DiskManager** is an application designed to manage the hard disk in your FX. It has the following functions:

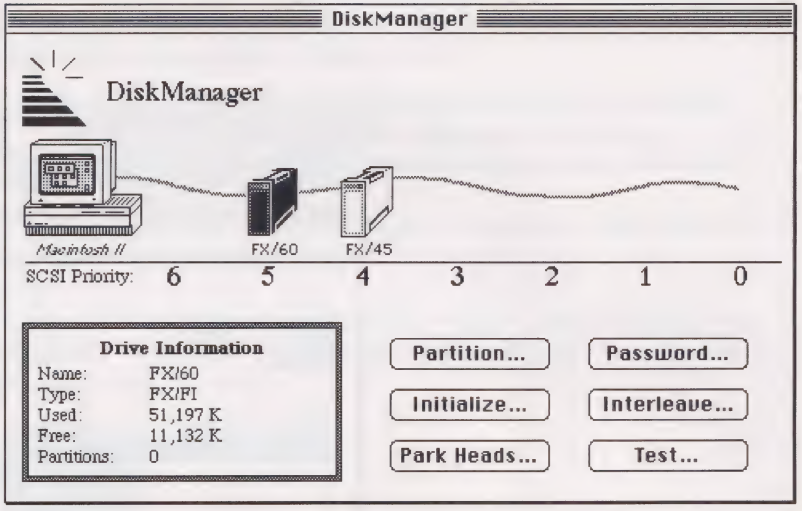
- Mounting all FX hard disks for use.
- Setting the SCSI ID of an FX.
- Testing the condition of the hard disk driver software.
- Dividing your FX into partitions.
- Providing passwords for your partitioned FX.
- Initializing the hard disk.
- Formatting the hard disk.
- Setting the interleave value of the hard disk.
- Parking the read/write heads.
- Testing the hard disk.

You should keep a copy of the **DiskManager** on the startup volume of your Macintosh.

Using the FX

Introduction

When you double-click on the **DiskManager** icon, the main DiskManager window will appear.



The top section of the window displays icons of all of the hardware components of your system. These icons are located directly above the number which represents that device's SCSI ID setting. (See "SCSI ID settings," on page 27 for more information.)

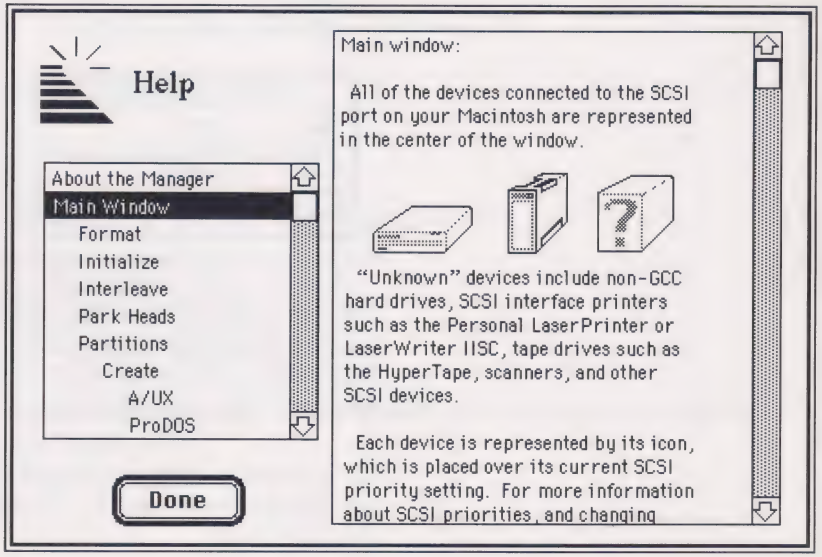
The six buttons in the lower right of this window allow you to manipulate several aspects of your FX. The following pages explain the functions of these buttons.

The box in the lower left provides information about your FX. Once you click on an FX icon, the information in this box appears. The name and type of drive is displayed, as well as the amount of used versus free space. The number of partitions currently on this drive is also displayed, if applicable.

Menu items

There are two menu items in the DiskManager; File and Edit. Under the File menu you will find **Help** and **Quit**. When you choose **Help**, a window will appear with two boxes. On the left is a list of topics, and on the right is a help information display area. Both boxes have a scroll bar, if necessary, to enable you to scroll through the help dialogs.

Select a topic from the left, and explanatory text and/or pictures appear on the right. (This Help dialog is context-sensitive, which means the selected default topic will be whatever function you are currently accessing.) Click **Done** or press the Return key when you are through using Help.


Help
About the Manager
Main Window
Format
Initialize
Interleave
Park Heads
Partitions
Create
A/UX
ProDOS
Done
Main window:
All of the devices connected to the SCSI port on your Macintosh are represented in the center of the window.
"Unknown" devices include non-GCC hard drives, SCSI interface printers such as the Personal LaserPrinter or LaserWriter IISC, tape drives such as the HyperTape, scanners, and other SCSI devices.
Each device is represented by its icon, which is placed over its current SCSI priority setting. For more information about SCSI priorities, and changing

The **Edit** menu is the same as the standard **Edit** menu found in most Macintosh applications.

Using the FX

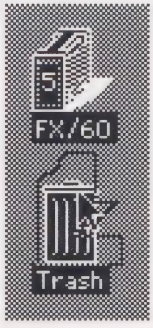
Mounting the FX

The FX icon normally appears on the desktop when the FX is the startup volume. If it is not mounted, you can use the **DiskManager** to mount it at any time. To mount the FX, run the **DiskManager** by double-clicking on its icon. The **DiskManager** will automatically mount all FXs when run, and the following message will be displayed:

> **Please wait. Searching for unmounted volumes.**

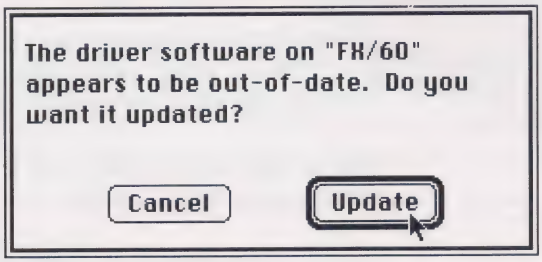
Choose **Quit** from the **File** menu to return to the Finder, where the FX icon will appear on the desktop.

If your FX is not being used as the startup volume, you can unmount it by dragging its icon into the **Trash Can**. Note that this does not affect any of the data on the hard disk.



Testing the condition of the hard disk driver software

Every time the **DiskManager** is run, it tests the software that controls the hard disk. If the software is out-of-date or in need of repair, the Disk-Manager will allow you to update it. You should click **Update** if the dialog shown below appears. Note that this will have no effect on your data.



Partitions

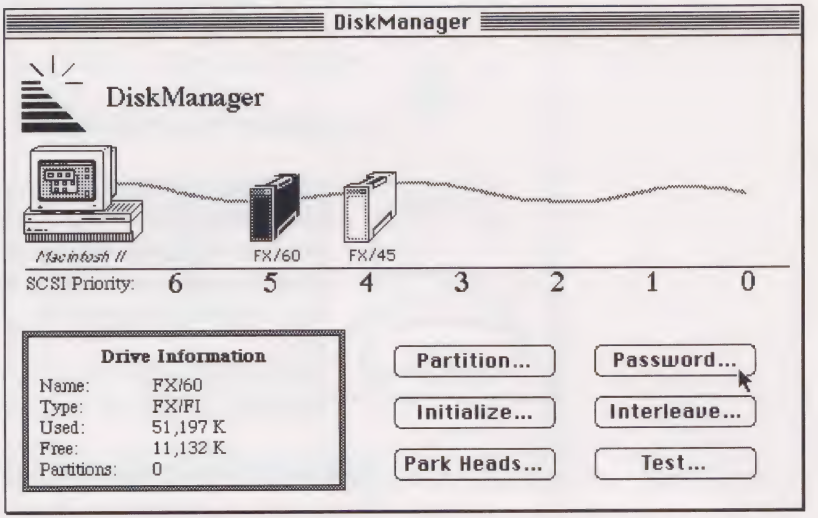
Partitioning allows you to divide the data on your FX into independently separate volumes, as well as provide support for Macintosh, A/UX, and ProDOS operating systems. Because Partitioning is such an important part of the DiskManager, it is documented separately in Chapter 5.

Passwords

A password can be given to a partitioned FX to protect your data from un-authorized access. (An FX that is not a partitioned device cannot be given a password.)

1. *Run the* **DiskManager** *by double-clicking on its icon.*
2. *The Manager window will appear. Select the FX that you want to give a password to.*

3. *Click the* **Password...** *button.*



4. *Two dialogs will appear, each time asking you to type in the new password. The passwords must match in order for the new password to take effect. Each time, type in the password and click* **OK**.
5. *Choose* **Quit** *from the* **File** *menu to return to the Finder.*

Deleting a password

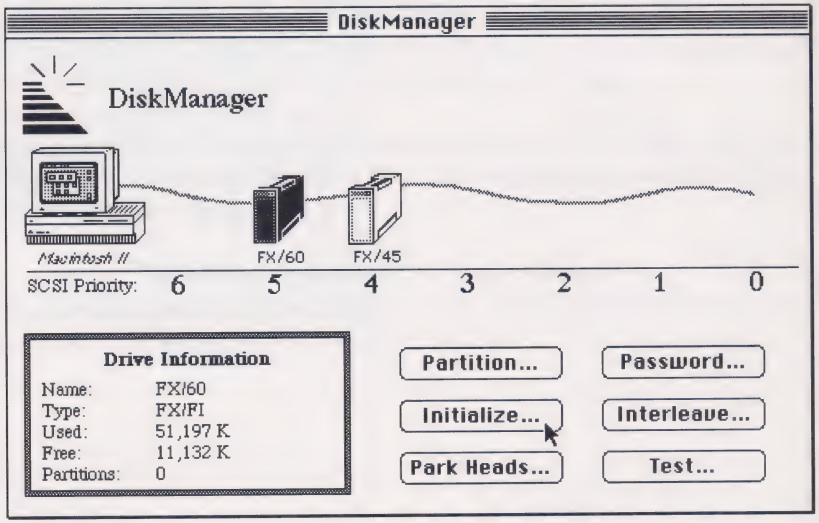
If you wish to delete a password, follow steps 1 - 5 above: in step 4, just press the Return key for both dialogs.

Initializing the hard disk

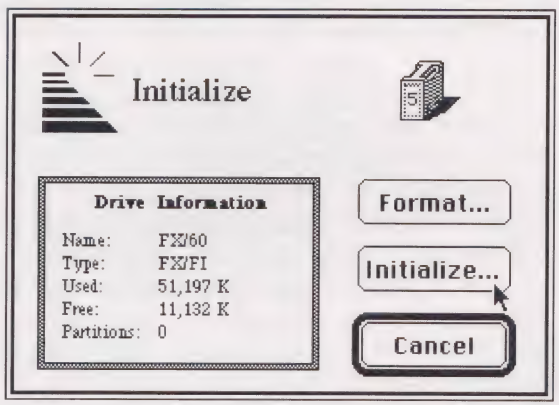
Initializing the hard disk is nearly the same as initializing a floppy disk. **It erases all data and files on the hard disk** as it prepares the disk to receive new information. If you want to save the files on the hard disk, make backup copies before initializing the disk.

To initialize the hard disk:

1. *After making backup copies of all of the FX files you want to keep,* **Shut Down** *the Macintosh. (Do not switch off the FX.)*
2. *Insert the FX* **Installation** *disk into the internal disk drive of your Macintosh and switch on the Macintosh.*
3. *Run the* **DiskManager** *from the floppy disk by double-clicking on its icon.*
4. *The DiskManager window will appear. Select the FX that you want to initialize, and click the* **Initialize...** *button.*

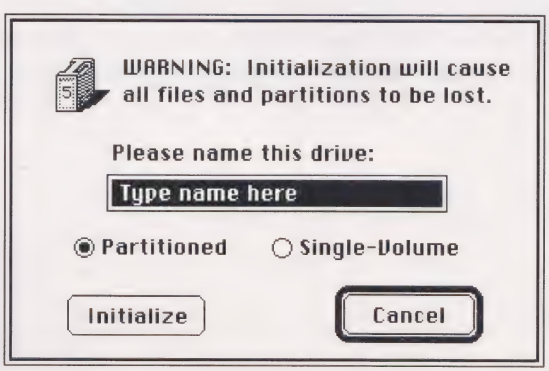


5. *The Initialize window will appear. Click* **Initialize...**.



NOTE: If there are any partitions on this FX that have a password, you cannot initialize the drive. Either delete the passwords (see page 51) or delete the partitions.

6. *A dialog will appear. Type in a name for your FX, and choose either* **Partitioned** *or* **Single-Volume**. *This indicates that the hard disk will be initialized to support multiple partitions, or as a single volume that cannot be partitioned. Please see "Chapter 5: Partitions," beginning on page 65.*



7. *Click the* **Initialize** *button.* **WARNING: This is your last chance to cancel before the initialization erases all files on the hard disk.**

NOTE: After you initialize (or format) a partitioned drive, you **must** create partitions before you can access the drive. If you have initialized (or formatted) the drive as a single-volume device, it cannot be partitioned unless you reinitialize it as a partitioned device.

8. *Choose* **Quit** *from the* **File** *menu.*
9. *Install your system software following the steps given in the section "Software installation," on pages 34 - 41.*
10. *Restore the files that you backed up, if necessary, following the instructions provided with your backup program.*

Formatting the hard disk

If the data on the hard disk is severely damaged or you need to change the interleave value, it may be necessary to format the hard disk. (Formatting actually clears out all of the bad blocks.) Since this procedure also erases all of the data on the hard disk, make sure you back up all of the information that you want to save. To format the hard disk, follow the steps above, clicking **Format...** instead of **Initialize...** in step 5. When the formatting is completed, a disk test is performed automatically and the FX software drivers are reinstalled. Do not abort the disk test. For more information on interleaves, please see "Interleave value," on the following page.

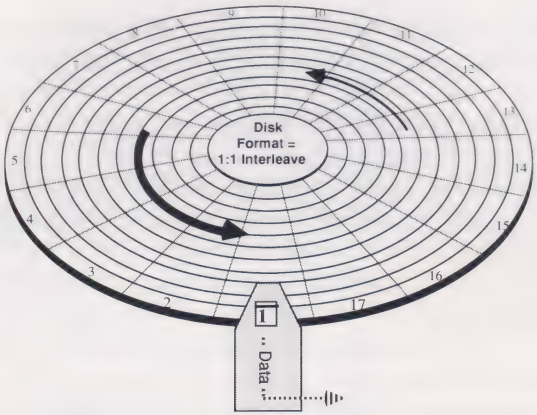
Interleave value

The following is a brief discussion about the components of the drive, the interleave of the drive, and how the interleave affects the performance of the drive. This is presented in order to help you better understand your hard disk.

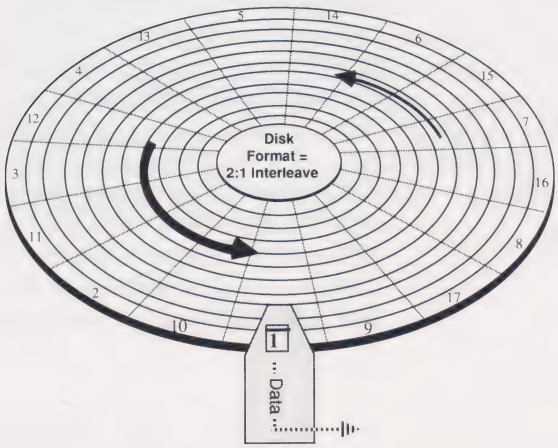
The data on a disk drive is laid out into "tracks," which run in a circle. These tracks of data are further divided into "sectors." The purpose of this segmentation is so that the data can be written in manageable pieces. Although sector sizes can vary, 512 bytes is typical for the sector size on most hard disks. Therefore, even if a file itself is very small, it will still occupy one whole sector of 512 bytes.

The *interleave* is the arrangement in which the data is logically laid out on the drive, which determines how fast the data is read from the hard disk. If the data sectors are laid out in consecutive order, this interleave value is known as *one to one*. If the data is alternated, where the sector containing the second part of the data is placed two sectors away from the first part of the data, this interleave is *two to one*. If the data is three sectors apart, the interleave is *three to one*. The formatted interleave value dictates the number of times that the drive must rotate before all of the data on a single track is read.

The interleave must be set to the speed that the drive itself can read and send the data. If the interleave is set faster, the computer will have to wait for another rotation of the drive to pick up the next sector. The interleave, therefore, is just the arrangement of data on the disk. What is more important is how the drive interacts with the interleave value.



This diagram illustrates a hard disk that has a 1:1 interleave.

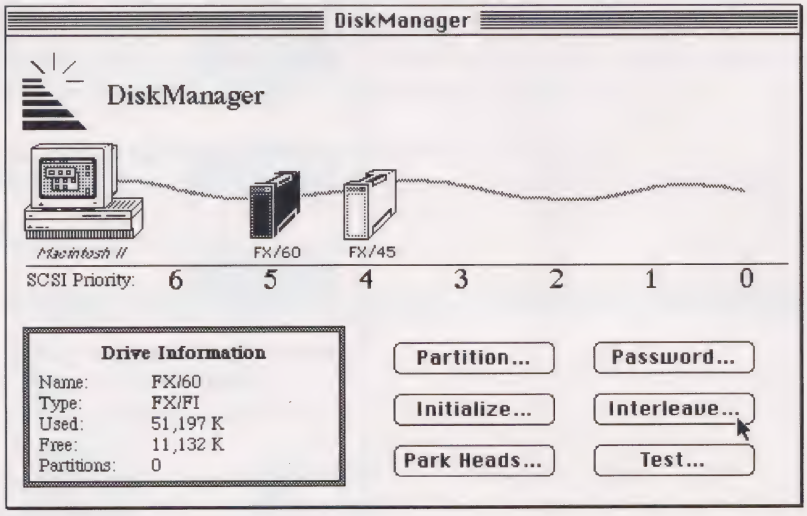


This diagram illustrates a hard disk that has a 2:1 interleave.

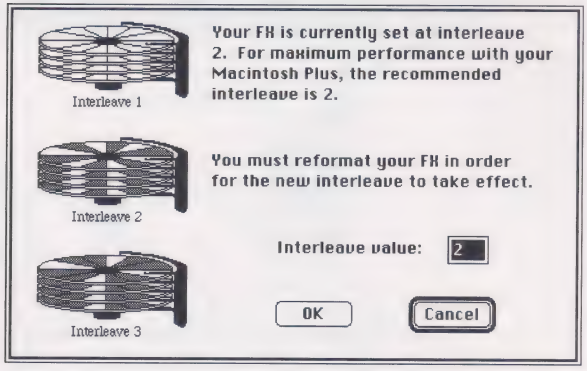
Using the FX

If your hard disk appears to be running slow, use the DiskManager to determine if the interleave value is at the best setting.

1. *Run the* **DiskManager** *by double-clicking on its icon.*
2. *The DiskManager window will appear. Select the FX whose interleave value you want to check (or change) by clicking on its icon.*
3. *Click the* **Interleave...** *button.*



4. *A dialog will appear informing you of the current interleave value of your drive. It will also indicate what interleave value your drive should have for optimum performance with the Macintosh it is connected to. The recommended interleave value for your drive will appear highlighted in the box next to* **Interleave value**. *(The interleave value for some high performance hard disks cannot be changed, since the value is already at the maximum 1:1 for all computers.)*


Interleave 1
Interleave 2
Interleave 3
Your FH is currently set at interleave 2. For maximum performance with your Macintosh Plus, the recommended interleave is 2.
You must reformat your FH in order for the new interleave to take effect.
Interleave value:
2
OK
Cancel

5. *Click* **OK** *to confirm this choice, or click* **Cancel.**

IMPORTANT: For this new interleave to take effect, you must reformat your drive. See "Formatting the hard disk," on page 54 for instructions.

6. *The DiskManager window will reappear. Choose* **Quit** *from the* **File** *menu to return to the Finder.*

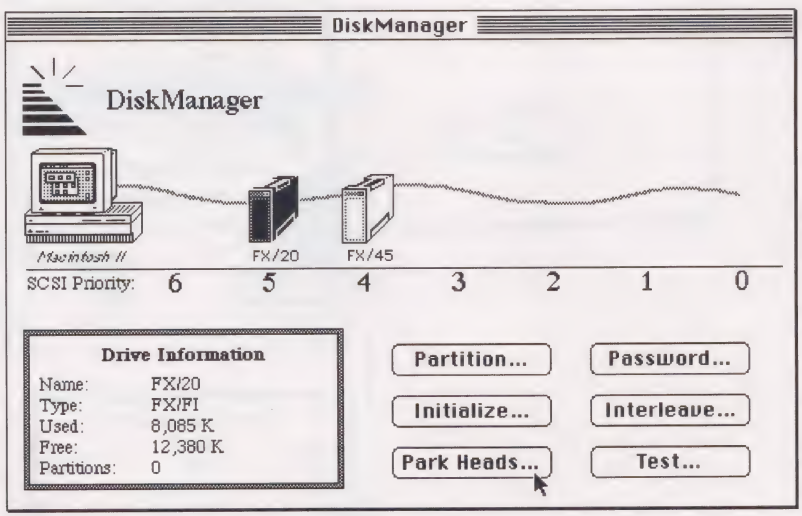
NOTE: Improper interleave values will result in poor performance of your hard disk.

Parking the hard disk heads for transport

The FX's sturdy design and carrying handle make it easy to move your hard disk around. To prepare your FX for transport, make sure the read/write heads are "parked" in a safe place. The FX automatically parks the heads whenever the **Shut Down** command from the **Special** menu in the Finder is used. In addition, all of the FXs, with the exception of the FX/20, will park their heads upon removal of power. If you own an FX/20, and you do not use the **Shut Down** command, data may be lost if the FX/20 is moved. To avoid this, ALWAYS USE THE SHUT DOWN COMMAND.

NOTE: If your FX/20 is running a version of the System which is older than 4.1, you MUST park the heads using the DiskManager.

1. *Run the* **DiskManager** *by double-clicking on its icon.*
2. *The DiskManager window will appear. Select the FX/20 by clicking on its icon.*
3. *Click the* **Park Heads...** *button.*



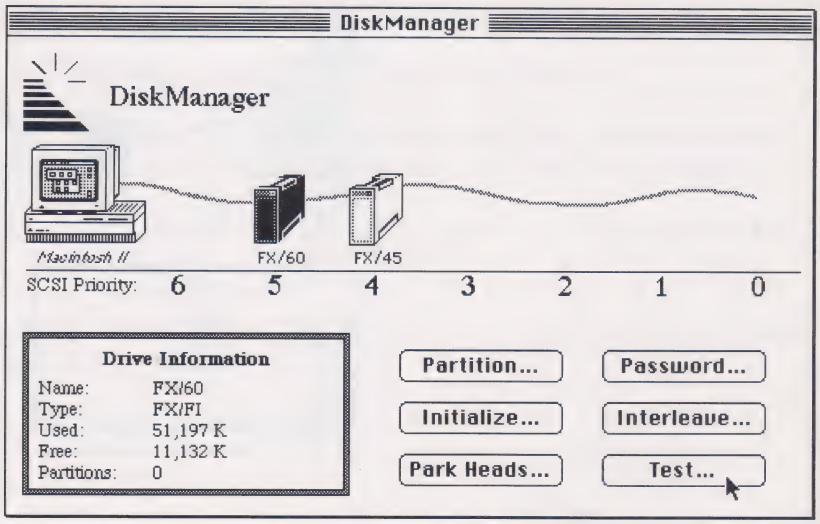
If the FX/20 is your startup volume, a dialog will appear instructing you to switch off your Macintosh. If you have additional FX/20 hard disks, their heads will be parked along with the startup volume's. If you have a Macintosh II, IIx, or IIcx, it will automatically shut itself off after you select **Shut Down**.

Testing the hard disk

Use the disk test to verify that an FX is working at peak performance or that it is in need of service. You should run a disk test every couple of months to avoid unexpected data loss. As the disk test takes a minute or so for each megabyte on the hard disk, it will take a long time. If you should need to terminate the test, click the **Abort Test** button.

To test the hard disk:

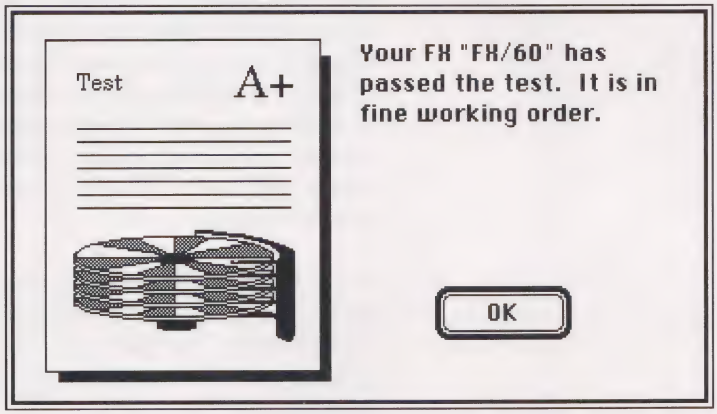
1. *Run the* **DiskManager** *by double-clicking on its icon.*
2. *The DiskManager window will appear. Select the FX that you want to test by clicking on its icon.*
3. *Click the* **Test...** *button.*



4. *While the test is running, you can abort the test at any time without damaging your hard disk or your data. To abort the test, click the* **Abort Test** *button.*

WARNING: Do not turn off, disconnect, or move your FX or Macintosh during a Disk Test. You may lose or damage files.

5. *When the test is finished, you will either be told that the test was successful and the hard disk is OK or that the test failed and you need to contact your dealer.*



Background printing with MultiFinder

MultiFinder™ is a multi-tasking operating system for the Macintosh. It allows you to have several applications open at the same time, including background applications that let you perform one task while your computer performs another.

The FX software, that is already installed on your hard disk, includes MultiFinder. It also includes special printing resources that will allow you to print using Background Printing.

A background process is one in which the computer performs tasks behind the scenes, while you continue using your computer for other tasks. Background Printing is an example of this, where your documents are printing while you continue to do other work on your computer. If you are running MultiFinder on your computer, and are printing to an Apple LaserWriter or a GCC Technologies Business LaserPrinter™, you can print your documents and continue working at the same time. You must have a printer that uses the standard LaserWriter driver in order to access Background Printing.

When Background Printing is turned on and you choose the **Print** command, your document will be spooled to the startup volume and saved in a **Spool Folder**. The spooling process is relatively quick compared to the printing process. Once your document has been spooled, you can continue working.

There are two files that are necessary in order to print in the background while running MultiFinder. (The FX software includes these files.) One of these files is called **Backgrounder**. This lets your documents print in the background. The second file is called the **PrintMonitor** application. This application provides additional information regarding your spooled documents. **PrintMonitor** also has its own **File** menu.

For complete instructions on using MultiFinder, please see the MultiFinder documentation provided by Apple Computer, Inc.

Chapter 5:
Partitions

Chapter 5: Partitions

Introduction

Partitions allows you to divide your data into independently separate volumes and provides support for Macintosh, A/UX, and ProDOS operating systems. We recommend that you use the GCC partitioning software with your FX and not partitioning developed by a third party. The DiskManager partitions feature has been specifically designed for the FX and provides for optimal performance.

When you first receive your FX, it is configured as a single-volume Macintosh device. Please see the Release Notes included with the FX for instructions on converting to a partitioned device.

Macintosh partitions may be write-protected (locked), set to automatically mount when you start up your computer, and set as the startup partition. Passwording capabilities can also be given to the partitions, allowing important data to be secured from unauthorized access.

Using the GCC partitioning software to create A/UX or ProDOS partitions allows part or all of your FX to be used with these operating systems. The features of these partitions are determined primarily by the A/UX and ProDOS operating systems, respectively. Please refer to the A/UX and ProDOS operating system documentation for more information.

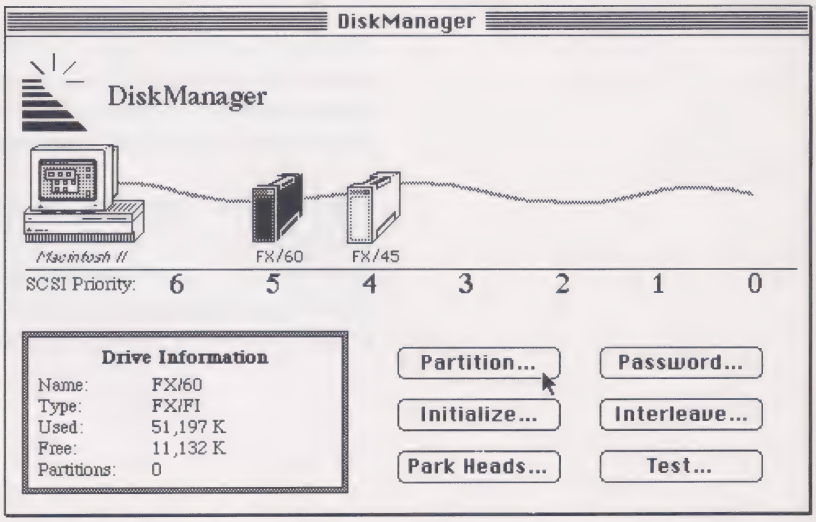
Partitions

Using the Partitions feature

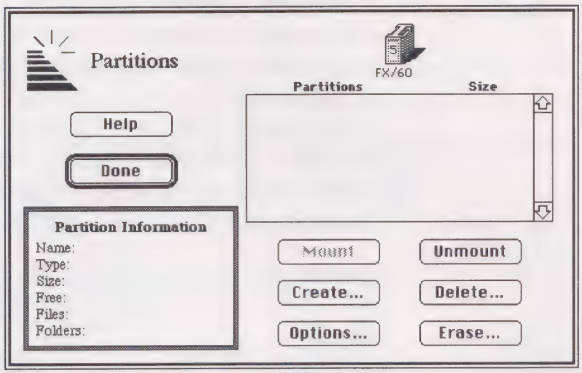
Partitions can be accessed from the DiskManager, or from a desk accessory called **GCC Partitions**. See page 79 for information on using the desk accessory.

To access Partitions using the DiskManager:

1. *Run the* **DiskManager** *by clicking on its icon.*
2. *The DiskManager window will appear. Click on the icon of the FX that you want to divide into partitions.*
3. *Click on* **Partition....**



4. *The main Partitions window will appear.*



The upper right of the window will display, if any, a list of partitions for the selected FX. (There are no partitions yet for this FX.) Below this box are six buttons: Mount, Unmount, Create, Delete, Options, and Erase. All of the buttons, except **Create...** and **Delete...**, are inactive if a selected partition is A/UX or ProDOS. If the partition is a Macintosh HFS partition, **Mount** or **Unmount** is disabled accordingly as the volume is unmounted, or mounted, respectively.

Once a partition has been created, its name will appear in the list at the upper right of the window. In this list, small icons are used to differentiate between mounted, unmounted, A/UX, and ProDOS partitions. If the partition is a Macintosh partition, icons are also used to indicate locked or unlocked, and the startup partition. Follow the instructions on page 69 to create a partition.

Mounted Macintosh partition

A/UX partition

ProDOS partition

Startup partition

Locked (write-protected) partition

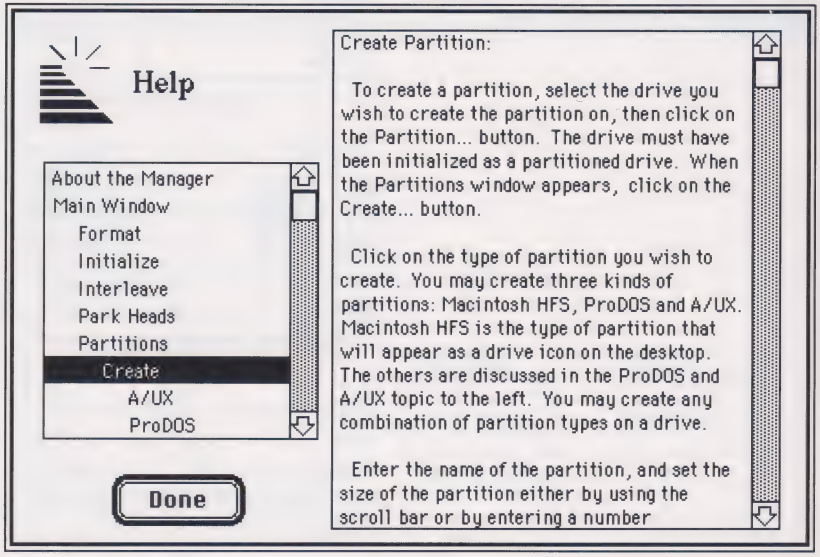
Blank indicates unmounted Macintosh partition

Non-GCC partition

Help

Help buttons are located throughout the Partitions windows. When you click **Help**, a window will appear with two boxes. On the left is a list of topics, and on the right is a help information display area. Both boxes have a scroll bar, if necessary, to enable you to scroll through the help dialogs.

Select a topic from the left, and explanatory text and/or pictures appear on the right. (This Help dialog is context-sensitive, which means the selected default topic will be whatever function you are currently accessing.) Click **Done** or press the Return key when you are through using Help.


Help
About the Manager
Main Window
Format
Initialize
Interleave
Park Heads
Partitions
Create
A/UX
ProDOS
Done
Create Partition:
To create a partition, select the drive you wish to create the partition on, then click on the Partition... button. The drive must have been initialized as a partitioned drive. When the Partitions window appears, click on the Create... button.
Click on the type of partition you wish to create. You may create three kinds of partitions: Macintosh HFS, ProDOS and A/UX. Macintosh HFS is the type of partition that will appear as a drive icon on the desktop. The others are discussed in the ProDOS and A/UX topic to the left. You may create any combination of partition types on a drive.
Enter the name of the partition, and set the size of the partition either by using the scroll bar or by entering a number

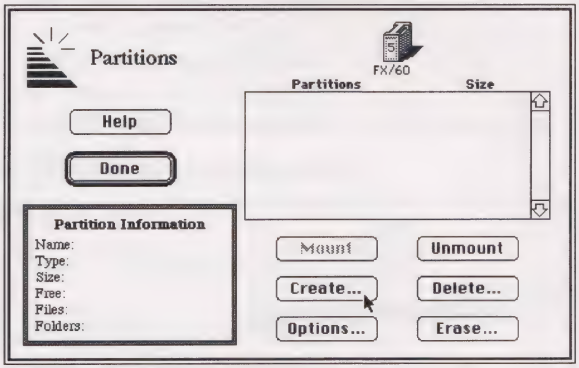
Partitions

Create

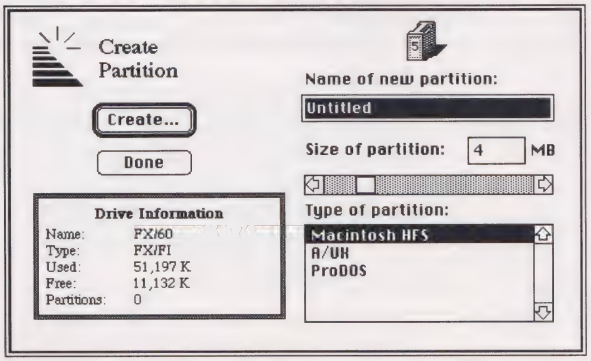
To create a partition:

1. *Click the* **Create...** *button in the main Partitions window.*

NOTE: The **Create...** button will be grayed out if your hard disk has the maximum number of partitions (which is 32).

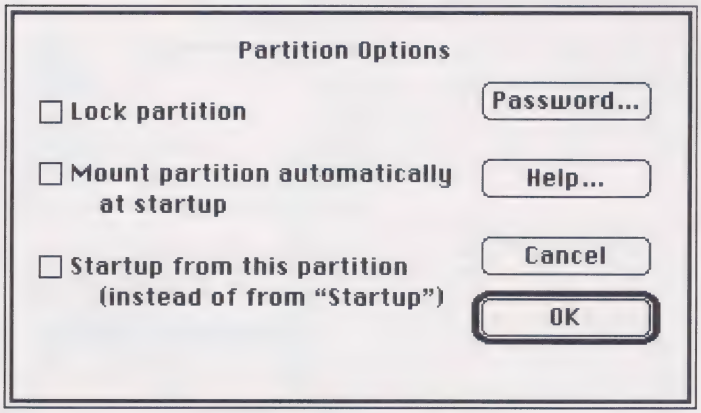


2. *The Create Partition dialog will appear. Type in a name for this partition. Names are limited to lengths of 1 to 27 characters and cannot contain the* **:** *(colon) character.*



NOTE: You must have a name for the partition; otherwise, the **Create...** button will remain grayed out.

3. *Type in the size, or amount of space, to be allocated to this partition. This size may be set by typing a number in the box. You can also use the scroll bar. The minimum size of a partition is .5 megabytes. (NOTE: Up to one decimal point will be recognized for the size of a partition. Sizes beyond one decimal point will be truncated.)*
4. *Select the type of partition that you want.*
5. *Click the* **Create...** *button.*
6. *The Partition Options window will appear. Click on the boxes next to the options that you want, and click the* **OK** *button. These options are discussed in detail on pages 75 - 77.*



7. *The Create window will reappear. Repeat steps 2 - 6 above to create more partitions. The maximum number of partitions you can create on an FX is 32. Click the* **Done** *button when you are finished.*
8. *The main Partitions window will reappear. Click* **Done**.
9. *The DiskManager window will reappear. Choose* **Quit** *to return to the Finder.*

Delete

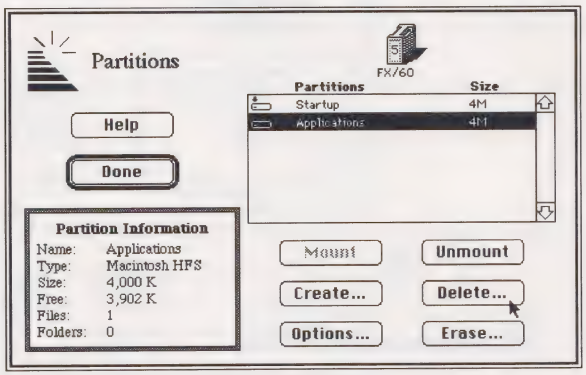
If you want to delete a partition, the **Delete** button will enable you to do so.

1. *Select a partition from the list at the top right of the Partitions window.*

NOTE: You cannot delete the startup partition unless you start up from a floppy.

2. *Click the* **Delete...** *button.*

WARNING: Deleting a partition will erase all of the data contained on that partition.



3. *A password will be asked for, if necessary.*
4. *A confirmation dialog will appear. Click* **OK**, *and the partition will be deleted, unless a file on that partition is currently open. In that case, a dialog will appear informing you of this. If this dialog does appear, you must Quit from all applications and repeat steps 1 - 4 above to delete this partition.*
5. *When the partition is deleted, its name will disappear from the list in the Partitions window. Repeat steps 1 - 4 to delete more partitions. Click* **Done** *when you are finished.*
6. *The DiskManager window will reappear. Choose* **Quit** *from the* **File** *menu to return to the Finder.*

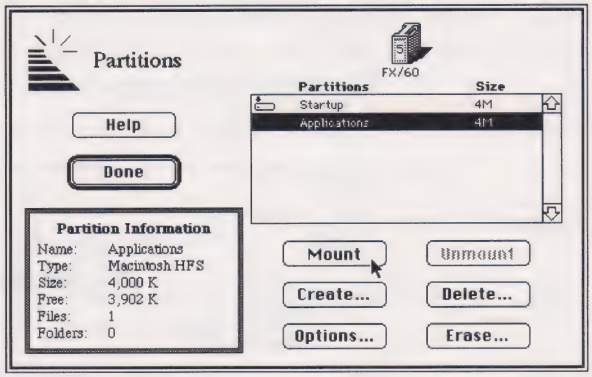
Mount

To mount a Macintosh partition onto the desktop:

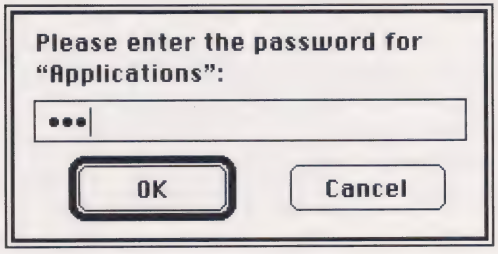
1. *Select a partition from the list at the top right of the Partitions window.*

NOTE: You cannot mount an A/UX or ProDOS partition.

2. *Click the* **Mount** *button.*



3. *If the partition is passworded, a dialog will appear asking for the password. If the password typed in by you is correct, the partition is mounted onto the desktop.*



NOTE: When you type in your password for a given partition, you have three chances. Once you fail the third time, that partition cannot be mounted until the Macintosh is restarted. After each restart, you have three chances to type in the correct password.

4. *Click the* **Done** *button.*
5. *The DiskManager window will reappear. Choose* **Quit** *from the* **File** *menu to return to the Finder.*

You can also mount a partition by double-clicking on its name.

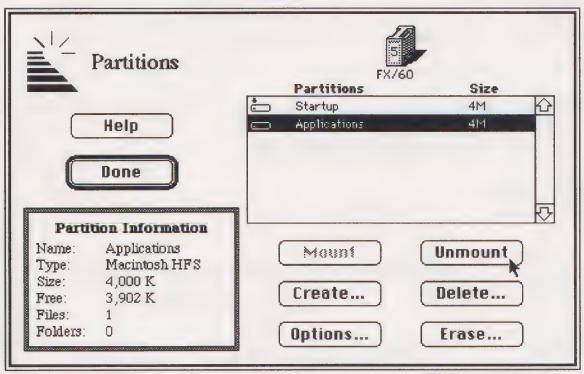
Unmount

To unmount a partition:

1. *Select a partition from the list at the top right of the Partitions window.*

NOTE: You cannot unmount the startup partition unless you start up from a floppy.

2. *Click the* **Unmount** *button.*



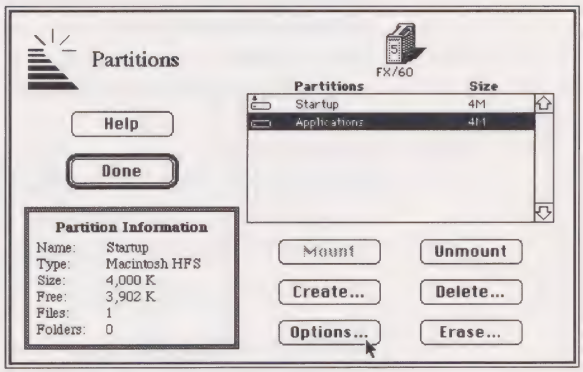
3. *The DiskManager will unmount the partition, unless a file on that partition is currently open; in that case, a dialog will be displayed informing you of this. If this dialog does appear, you must Quit from all applications and repeat steps 1 - 3 in order to unmount this partition.*
4. *Click the* **Done** *button.*
5. *The DiskManager window will reappear. Choose* **Quit** *from the* **File** *menu to return to the Finder.*

NOTE: If you are in the Finder, you can unmount a partition by dragging its icon to the Trash.

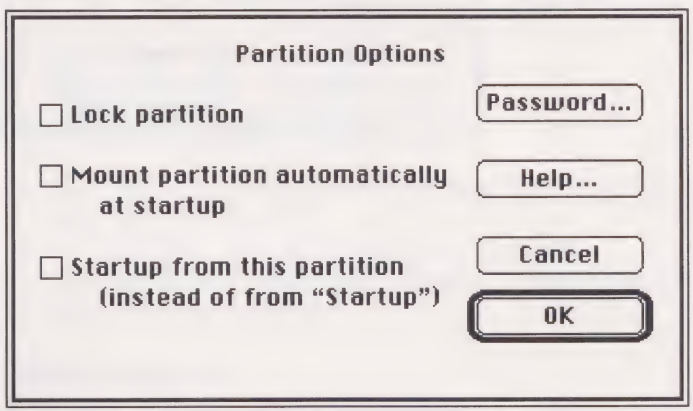
Options

The **Options** button allows you to change a Macintosh partition's options, including providing a password for the partition.

1. *Select a partition from the list at the top right of the Partitions window.*
2. *Click the* **Options...** *button.*



3. *If the partition is passworded, you will be asked to type in the password. If the correct password is typed in, the Partition Options window will appear.*



Any of the different options can be modified while in the Partition Options window. The changes do not take effect on the chosen partition until you click the **OK** button.

Lock partition
Checking the box next to **Lock partition** will lock the partition. This means you cannot write to the contents of the partition. (The partition must be unmounted for you to change this setting.) Check or uncheck the box next to **Lock partition**, depending on your preference.

Mount partition automatically at startup
If you check the box next to **Mount partition automatically at startup**, the partition that you choose will automatically mount on the desktop when you start or restart your Macintosh. If this partition has a password, it cannot be set to automatically mount at startup.

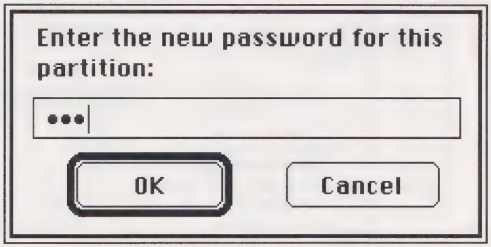
Startup from this partition
Any Macintosh partition created by the DiskManager can be set as the Macintosh startup volume. By checking the box next to this option, the Macintosh will attempt to start up from the selected partition if and when it tries to start up from that partition's drive. However, this partition cannot be given a password.

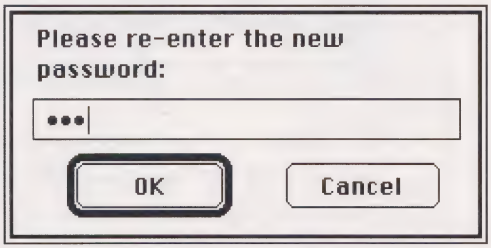
NOTE: You must make sure that the drive to which this partition belongs is the drive that the Macintosh will start up from. See page 26 for more information on setting a particular drive to be the startup device.

Passwords

The **Password...** button enables you to provide a password to a given partition. This does not encrypt the data, but it does prevent access to the files. A password cannot be given to the startup partition, or a partition that is set to automatically mount.

1. *Click the* **Password...** *button.*
2. *Two dialogs will appear, each time asking you to type in the new password. The passwords must match in order for the new password to take effect. Each time, type in the password and click* **OK**.





3. *Click* **OK** *in the Partition Options window, and the options you selected will take affect.*
4. *The Partitions window will reappear. Click* **Done**.
5. *The DiskManager window will reappear. Choose* **Quit** *from the* **File** *menu to return to the Finder.*

Deleting a password

If you wish to delete a password, follow steps 1 - 5 above: in step 2, just press the Return key for both dialogs.

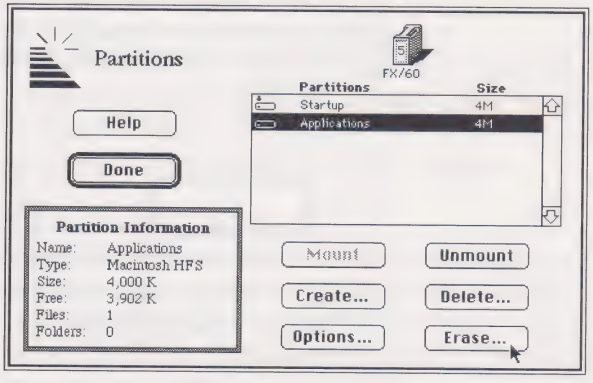
Erase

The Erase feature is similar to Erase Disk in the Finder, in that it will erase the data contained on the partition.

1. *Select a partition from the list at the top right of the Partitions window.*

NOTE: You cannot erase the startup partition unless you start up from a floppy.

2. *Click on* **Erase....**



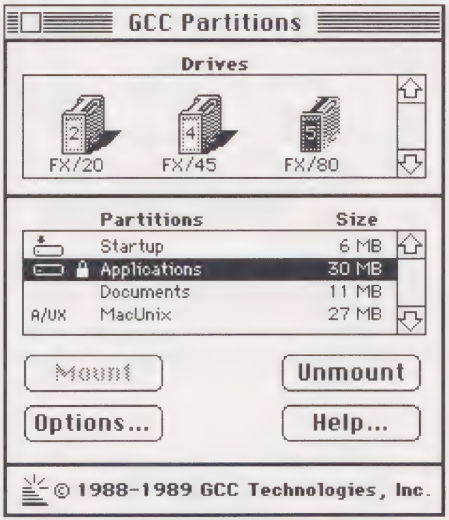
3. *A password will be asked for, if necessary.*
4. *A confirmation dialog will appear. Click* **OK**, *and the partition is completely erased, unless a file on that partition is currently open. In that case a dialog will be displayed informing you of this. If this dialog does appear, you must Quit from all applications and repeat steps 1 - 3 above in order to erase this partition .*
5. *Click the* **Done** *button.*
6. *The DiskManager window will reappear. Choose* **Quit** *from the* **File** *menu to return to the Finder.*

Partitions

GCC Partitions desk accessory

The GCC Partitions desk accessory allows you to conveniently perform some of the partitioning operations at any time, such as mounting and unmounting. It also allows you to modify partition passwords and some partition management capabilities. However, to create and delete a partition, you will need to use the DiskManager.

Choose **GCC Partitions** from the **Apple** menu to display the GCC Partitions window. If for some reason GCC Partitions is not shown under the Apple menu, follow the instructions on pages 38 - 41 and use the **Font/DA Mover** to install it.



The top section of the window displays icons for the GCC partitioned drives currently operating and connected to the Macintosh. When the GCC Partitions window is first displayed, the default volume will be selected. (This list will be blank if there are no GCC SCSI partitioned drives connected to the Macintosh.)

Partitions

The scroll box in the middle of the window contains a list of the names and sizes of all of the partitions available on the drive which is currently selected. If there are no partitions on the selected drive, or if the section where the drive icons are displayed is blank, the partition list will be empty and the operation buttons disabled.

You will notice in the partition list small icons which are used to differentiate between mounted, unmounted, A/UX, and ProDOS partitions. If the partition is a Macintosh partition, icons are also used to indicate locked or unlocked, and the startup partition.

Mounted Macintosh partition

A/UX partition

ProDOS partition

Startup partition

Locked (write-protected) partition

Blank indicates unmounted Macintosh partition

Non-GCC partition

Using the desk accessory

To use the desk accessory, select a drive by clicking on its icon from the list of icons at the top of the window. Once a drive is selected, the list of partitions available on that drive will appear in the middle section of the window.

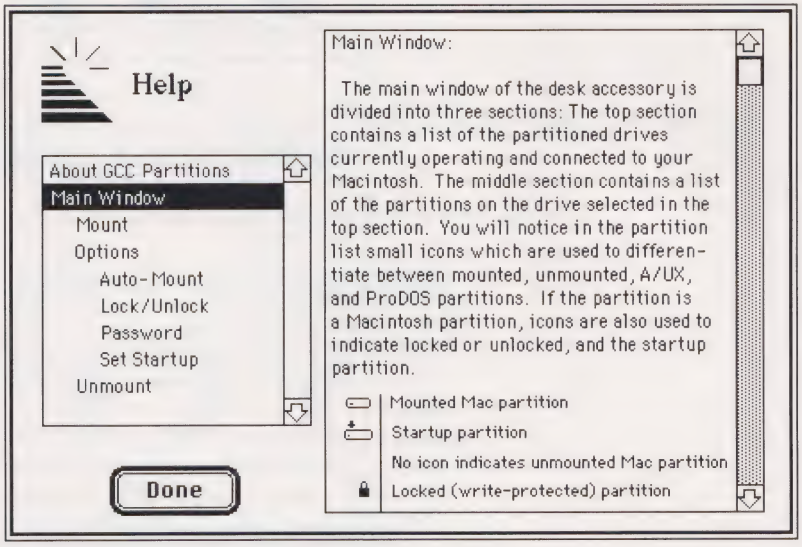
Select a partition by clicking on its name. (You will notice that the entire line will be highlighted.) Mount, unmount, and options function identically here as in Partition Options in the DiskManager. The documentation has been repeated here in case you are only using the desk accessory.

Each time a Macintosh partition is selected, the **Options...** button is enabled, as well as either the **Mount** or **Unmount** buttons. If an A/UX or ProDOS partition is selected, only the **Help** button is enabled.

Help

Help buttons are located throughout the GCC Partitions desk accessory. When you click **Help**, a window will appear with two boxes. On the left is a list of topics, and on the right is a help information display area. Both boxes have a scroll bar, if necessary, to enable you to scroll through the help dialogs.

Select a topic from the left, and explanatory text and/or pictures appear on the right. (This Help dialog is context-sensitive, which means the selected default topic will be whatever function you are currently accessing.) Click **Done** or press the Return key when you are through using Help.


Help
About GCC Partitions
Main Window
Mount
Options
Auto-Mount
Lock/Unlock
Password
Set Startup
Unmount
Done
Main Window:
The main window of the desk accessory is divided into three sections: The top section contains a list of the partitioned drives currently operating and connected to your Macintosh. The middle section contains a list of the partitions on the drive selected in the top section. You will notice in the partition list small icons which are used to differentiate between mounted, unmounted, A/UX, and ProDOS partitions. If the partition is a Macintosh partition, icons are also used to indicate locked or unlocked, and the startup partition.
Mounted Mac partition
Startup partition
No icon indicates unmounted Mac partition
Locked (write-protected) partition

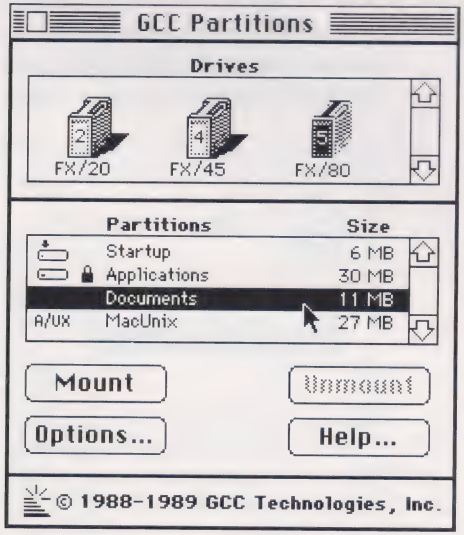
Mount

To mount a Macintosh partition onto the desktop:

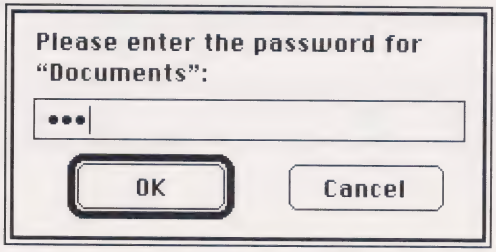
1. *Select a drive from the top of the GCC Partitions window.*

NOTE: You cannot mount an A/UX or ProDOS partition.

2. *Select a partition from the middle of the window.*



3. *Click the* **Mount** *button. If the partition is passworded, a dialog will appear asking for the password. If the password typed in by you is correct, the partition is mounted onto the desktop.*



NOTE: When you type in your password for a given partition, you have three chances. Once you fail for the third time, that partition cannot be mounted until the Macintosh is restarted. After each restart, you have three chances to successfully type in the correct password.

4. *Click on the close box in the upper left corner to close the desk accessory window.*

NOTE: You can also mount a partition by double-clicking on its name, or by clicking once on the name and pressing the Return key.

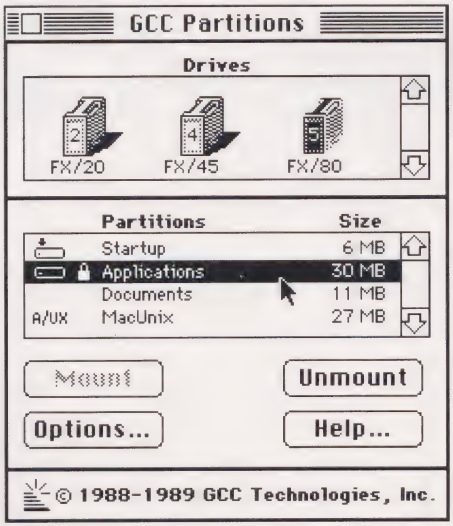
Unmount

To unmount a partition:

1. *Select a drive from the top of the GCC Partitions window.*

NOTE: You cannot unmount the startup partition unless you start up from a floppy.

2. *Select a partition from the middle of the window.*



3. *Click the* **Unmount** *button. The partition will be unmounted, unless a file on that partition is currently open; in that case, a dialog will be displayed informing you of this. If this dialog does appear, you must Quit from all applications and repeat steps 1 - 3 above in order to unmount this partition.*
4. *Click on the close box in the upper left corner to close the desk accessory window.*

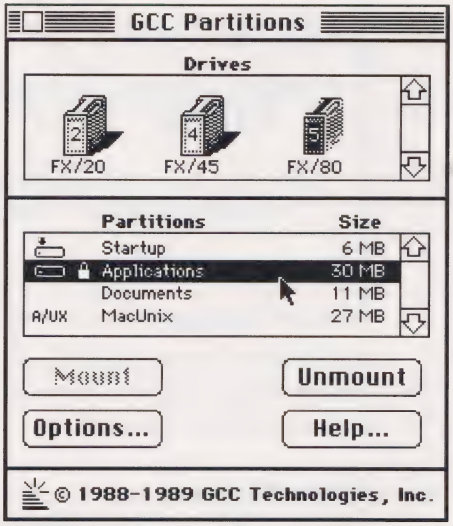
NOTE: If you are in the Finder, you can unmount a partition by dragging its icon to the Trash.

Partitions

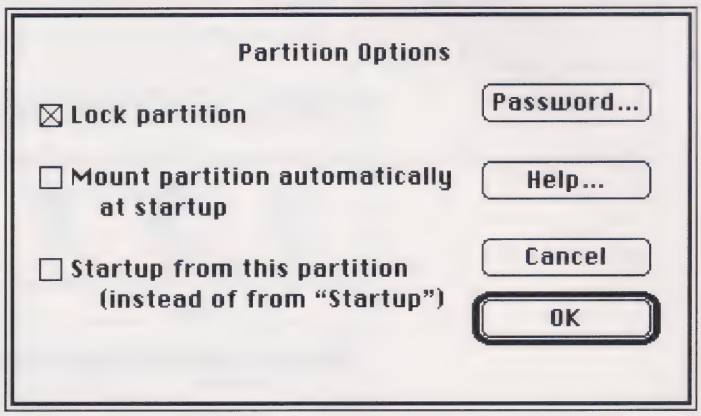
Options

The **Options...** button allows you to change a Macintosh partition's options, including its password.

1. *Select a drive from the top of the GCC Partitions window.*
2. *Select a partition from the middle of the window.*



3. *Click the* **Options...** *button. If the partition is passworded, you will be asked to type in the password. If the correct password is typed in, the Partition Options window will appear.*



Any of the different options can be modified while in the Partition Options window. The changes do not take effect on the chosen partition until you click on the **OK** button.

Lock partition

Checking the box next to **Lock partition** will lock the partition. This means you cannot write to the contents of the partition. (The partition must be unmounted for you to change this setting.) Check or uncheck the box next to **Lock Partition**, depending on your preference.

Mount partition automatically at startup

If you check the box next to **Mount partition automatically at startup**, the partition that you choose will automatically mount on the desktop when you start or restart your Macintosh. If this partition has a password, it cannot be set to automatically mount at startup.

Startup from this partition

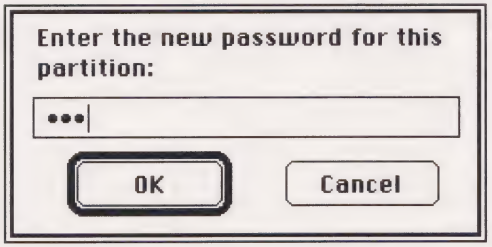
Any Macintosh partition created by the DiskManager can be set as the Macintosh startup volume. By checking the box next to this option, the Macintosh will attempt to start up from the selected partition if and when it tries to start up from that partition's drive. However, this partition cannot be given a password.

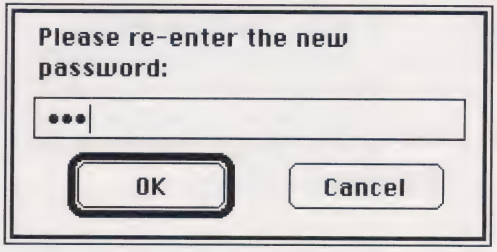
NOTE: You must make sure that the drive to which this partition belongs is the drive that the Macintosh will start up from. See page 26 for information on setting a particular drive to be the startup device.

Passwords

The **Password...** button enables you to provide a password to a given partition. A password cannot be given to the startup partition, or a partition that is set to automatically mount.

1. *Click the* **Password...** *button.*
2. *Two dialogs will appear, each time asking you to type in the new password. The passwords must match in order for the new password to take effect. Each time, type in the password and click* **OK**.





3. *Click* **OK** *in the Partition Options window.*
4. *Click on the close box in the upper left corner to close the desk accessory window.*

Deleting a password

If you wish to delete a password, follow steps 1 - 4 above: in step 2, just press the Return key for both dialogs.

Chapter 6: Troubleshooting

Chapter 6: Troubleshooting

Problem-solving procedures

The FX is designed and manufactured to the highest quality standard. The software provided with the products adheres strictly to Apple's programming guidelines as set forth for the Macintosh, and both the hardware and software are tested for hundreds of hours to ensure reliability. Despite all this, on rare occasions you may still run into a problem with your system's operation. This section will help you troubleshoot and remedy any problems with the FX or **System Folder**. The problems are in bold, followed by the steps you should take to eliminate the problem. If you are having problems with the individual software utilities provided on the FX **Applications** disk, refer to the appropriate manual for help.

The Macintosh does not start up automatically from the FX.

• A blinking question mark indicates that the Macintosh is not communicating correctly with the FX.

1. *Disconnect, examine, and reconnect every cable, terminator, and SCSI device. Make sure there are no tight kinks or bends in the SCSI cabling. After the setup is checked, make sure all external SCSI devices are powered up for 15 seconds before switching on the Macintosh. (Check to make sure that the power LED is on solid.) If you do not hear the fan or hard disk spinning after switching on power, check the power cords and switches. If your FX still does not power up or if there is any problem with the SCSI cables or terminators, see your dealer or contact GCC.*
2. *Check to make sure that the hard disk has a* **System Folder** *containing a System and Finder. To do this, you will need to start up the Macintosh with the FX* **Installation** *disk in the floppy drive, and mount the FX using the* **DiskManager**.
3. *Check the SCSI ID assigned to each SCSI device. If two devices have the same ID, change one or both of them (see "Changing SCSI ID settings," on page 28). After correcting SCSI ID conflicts, restart the Macintosh.*

4. *If you are still having difficulties, disconnect all of the SCSI devices. Starting with the Macintosh, reconnect each device, one at a time, and restart the Macintosh each time. Note which device causes the problem you are experiencing. When you locate the malfunctioning device, remove it from the SCSI chain. Continue checking all of the other SCSI devices and contact your dealer or GCC about the malfunctioning device(s).*

The Macintosh does not start up automatically from the FX.

- An X indicates a problem with the software on the drive.

1. *Start up the Macintosh with the FX* **Installation** *disk in an internal floppy disk drive.*
2. *At the desktop, the FX* **Installation** *disk should appear in the upper, right corner of the screen. Below that, after a few seconds, the icon for the FX should appear. If it does, there is probably something wrong with the* **System Folder** *on the hard disk. See "Software installation" on page 34.*
3. *If the FX does not appear, open the* **DiskManager** *application. If there are problems with the connected hard disks, the DiskManager will report them and offer to correct them. In extreme cases it may be necessary to* **Initialize** *or* **Format** *the hard disk. Remember that reinitializing or reformatting the hard disk will completely erase all of the data. See "Initializing the hard disk," on page 52, and "Formatting the hard disk," on page 54.*
4. *Check the SCSI ID numbers of your connected devices before quitting. Each device must have a unique SCSI ID number for the system to work correctly. See "Changing SCSI ID settings," on page 28 for more information.*
5. *Quit the DiskManager. Make sure you have a valid* **System Folder** *on your FX.*

6. *If the hard disk still does not start up automatically, start up from the FX* **Installation** *disk. Select the* **Control Panel** *desk accessory while holding down the Option-Command-Shift keys. A dialog box will inform you that you are about to clear parameterRAM. (Be aware that clearing parameter RAM will reset most of the settings in the* **Control Panel**, *including the date and time.) Click* **Yes** *and after the* **Control Panel** *appears, restart the Macintosh.*

The FX works very slowly or has problems saving or copying files.

• These problems are generally due to some corruption of invisible or low-level software on the hard disk. The following remedies should be tried individually, and you should check to see if the problem goes away between each one.

1. *If the message "Updating Desktop File" appears very slowly, there may be too many files on the hard disk. Try placing more files in folders or use partitions.*
2. *Run the* **DiskManager** *and run the disk test. This will establish that the hardware and many aspects of the software are OK.*
3. *Rebuild the invisible DeskTop file by holding down Option-Command when going to the Finder. This will erase any comments you have saved in the* **Get Info** *boxes for your files but it will also clean up the desktop file, making it more efficient.*
4. *If the performance problem occurs with every disk access it may indicate an incorrect interleave value. See "Interleave value," on page 55 for information regarding the proper format of the FX when used with different Macintoshes.*

A dialog appears with a bomb icon.

- There is a serious problem with the software. Try the following steps:

1. *Whenever a System Bomb occurs, there is an error code in the box. Write this number down as it may be helpful to a technician in case the next steps do not solve the problem.*
2. *Restart the computer. If the bomb does not reappear after doing the same things, the original problem was probably just a temporary glitch that will not occur again.*
3. *If the System Bomb appears again after doing the same things then the software on the disk could be corrupted:*

   - *If the bomb only occurs in one document, replace or recreate that document.*

   - *If the bomb only occurs in one application, recopy the application onto the FX.*

   - *If the bomb occurs only during printing, replace the printer drivers.*

   - *If the bomb occurs only when coming into the Finder (from an application or at startup), it may indicate a problem with the DeskTop file; hold down the Option-Command keys when starting up and allow the DeskTop to be rebuilt. This will erase any comments you have saved in the* **Get Info** *boxes for your files but it will clean up the desktop file, making it more efficient.*

   - *If the bomb occurs randomly, you will have to start up from the FX* **Installation** *disk and replace the* **System Folder**.

Service and Support

GCC Technologies is committed to servicing and supporting the products it sells. The documentation is written to provide you with all of the help you need. On rare occasions, however, when the answer is not in this documentation or when you have a serious problem with your machine, a network of dealers and service centers stands ready to help you. GCC Technologies supports this base of dealers and service centers with documentation, training, and technical support to provide you with fast and competent assistance.

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Glossary

application (program): A program such as MacWrite® or MacPaint®, used to manipulate information.

A/UX: Apple's UNIX operating system for the Macintosh.

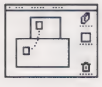
background printing: A program that allows printing to occur without interfering with the operation of the regular application.

Backgrounder: A file, used with MultiFinder, that allows documents to print in the background.

back up: The process of making an extra copy of a file in case of accidental loss of the original.

bit: The smallest unit of computer information equal to a single binary digit.

byte: A unit of computer information equal to 8 bits.



desktop: The working environment of the Macintosh Finder, which displays folders, files, and applications as icons.

device: A piece of equipment, such as a hard disk, tape unit, optical character reader, etc., used with the Macintosh.

Disk Test: A test to check the condition of the hard disk.

DiskManager: An application included with the FX that lets you test, format, and initialize the hard disk, set the unit's SCSI ID, park the read/write heads for transport, divide the FX into partitions, and set the interleave value of the drive.

Finder: A Macintosh application that displays the desktop and is used to manage documents and applications.

Glossary

folder: An organization tool for arranging files, documents, applications, or other folders on the storage device.

Format: A command that erases all data from the hard disk in preparation for receiving new data.

hard disk drive: A random-access device that stores large amounts of data on non-removable, magnetic disk platters.

Hierarchical File System (HFS): A filing system in which there are many distinct filing levels.

Initialize: The command that erases all files from the hard disk.

Interleave: The arrangement in which data is logically laid out on the drive.

Megabyte: A unit of computer information equal to 1,048,576 bytes.

mounting: The process of making a volume (particularly hard disks and tape backup drives) available for use. A mounted volume appears on your desktop in the Finder.

Parking (the heads): The process of placing the read/write heads of a hard disk in a safe zone over the hard-disk platter. Used prior to the transportation and shipment of hard disks to prevent data loss.

partitioning: The process of organizing your hard disk into separate sections which are treated as separate volumes.

peripheral devices: Any device connected to a computer used to input, output, or exchange data.

Glossary

port: A communication connection on the back of the Macintosh.

PrintMonitor: An application, used with MultiFinder, that provides additional information regarding spooled documents.

priority (SCSI): A setting given to each device on the SCSI cable system used to determine the order in which the Macintosh communicates with peripheral devices.

ProDOS: The operating system used on the Apple II product line.

Restart: A command available from the **Special** menu in the Finder which resets all functions of the computer.

SCSI (Small Computer System Interface): A computer industry standard parallel communication system that allows data to be exchanged with peripheral devices.

SCSI port: A 25-pin connection on the back of the Macintosh for the SCSI cable system.

SCSI terminator: A signal-dampening device used in the SCSI cable system to prevent signal echo and related errors.

serial: A communication system that uses sequential single bits to exchange data with peripheral devices.

serial port: A communication connection on the back of the Macintosh for serial devices.

Shut Down: A command available from the Special menu in the Finder which shuts down the computer. You should always use this command before switching off your computer.

Glossary

startup disk: The volume (usually a floppy or hard disk) containing the System and Finder files which are currently being used to run the Macintosh.

system cable: A cable used to connect the Macintosh to the first SCSI device, consisting of a narrow 25-pin connector at one end and a wide 50-pin connector at the other.

System Folder: The folder containing Macintosh System and Finder files, used to start and run the Macintosh.

unmounting: The process of making volumes (particularly hard disks and tape backup drives) unavailable for use.

volume: A distinct Macintosh storage area, which may be part of, or an entire storage device (such as a floppy disk). Volumes appear as icons on the right side of the Finder's desktop.

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580 Winter Street
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(617) 890-0880